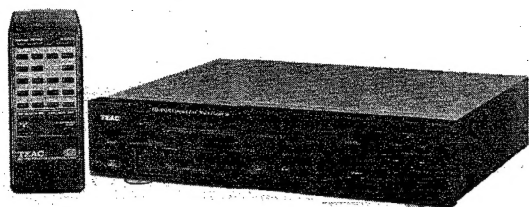


# TEAC®



## SERVICE MANUAL

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# PD-800M

## Compact Disc Multi Player

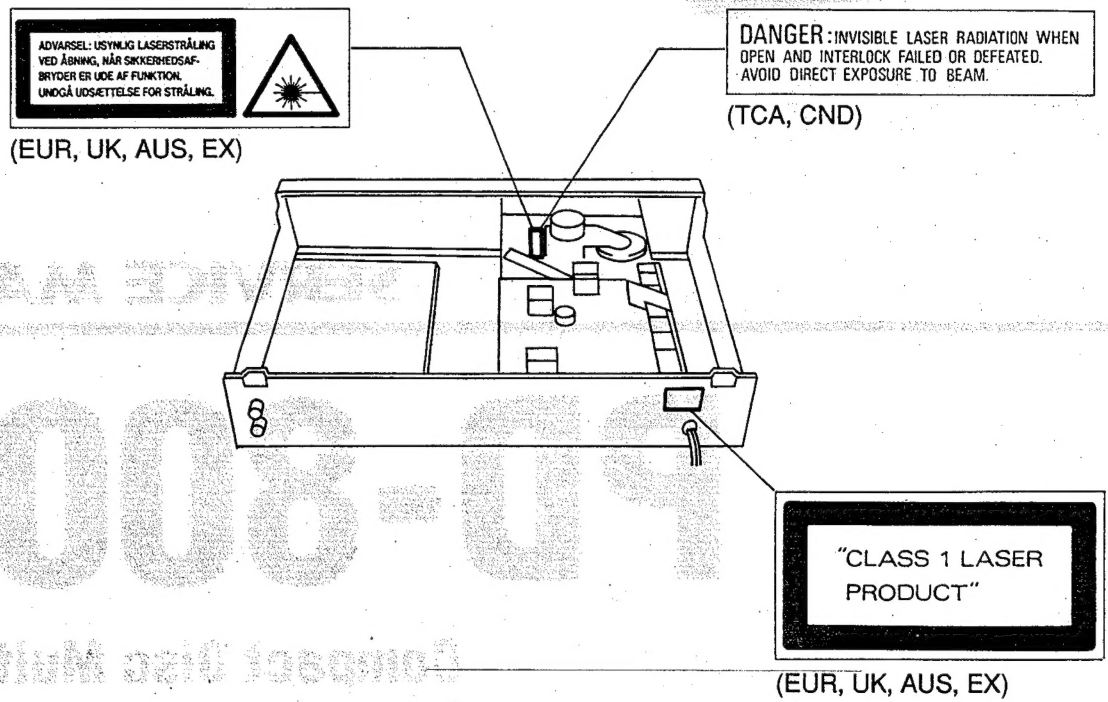
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### NOTES

- PC boards shown viewed from parts side.
- Parts marked with \*require longer delivery time.
- The mechanical parts with no reference number or no parts number in the exploded views are not supplied.
- As regards the resistors and capacitors, refer to the circuit diagrams contained in this manual.
- ⚠ Parts marked with this sign are safety critical components. They must always be replaced with identical components refer to the appropriate parts list and ensure exact replacement.

## WARNING LABEL LOCATION



[TCA] : U.S.A.  
[AUS] : Australia

[CND] : Canada  
[UK] : England

[EUR] : Europe  
[EX] : Other countries

## SPECIFICATIONS

### AUDIO

**Number of Channels:** 2  
**Frequency Response:** 5–20,000 Hz  $\pm 1$  dB  
**Signal-to-Noise Ratio:** Better than 93 dB (1 kHz)  
**Dynamic Range:** Better than 90 dB (1 kHz)  
**Harmonic Distortion:** 0.09 % (1 kHz)  
**Wow and Flutter:** Unmeasurable (Quartz accuracy)  
**Channel Separation:** Better than 85 dB (1 kHz)  
**Output:** 2.0 Vrms

### PICK UP

**Type:** Optical 3-beam laser pickup  
**Object Lens Drive System:** 2-dimensional parallel drive  
**Laser Type:** AlGaAs type semiconductor laser  
**Wavelength:** 790 nm

### SIGNAL FORMAT

**D/A Converter:** 16-bit linear  
**Error Correction:** CIRC (Cross Interleave Reed Solomon Code)  
**Sampling Frequency:** 44.1 kHz  
**Channel Modulation Code:** EFM (Eight to Fourteen Modulation)  
**Channel Bit Rate:** 4.3218 Mb/sec  
**Filter:** 4 Times Over Sampling Digital Filter

### GENERAL

**Power Requirements:** 120/220 V AC, 50/60 Hz  
(General Export Model)  
120 V AC, 60 Hz (U.S.A./Canada Model)  
220 V AC, 50 Hz (Europe Model)  
240 V AC, 50 Hz (U.K./Australia Model)  
**Power Consumption:** 11 W  
**Dimensions (W x H x D):** 435 x 101 x 332 mm  
(17-1/8" x 4" x 13-1/16")  
**Weight (net):** 5.2 kg (11.46 lbs.)  
**Standard Accessories:** Wireless Remote Control Unit (RC-410)  
Batteries (SUM-3, "AA", "R6" type) x 2, 6-disc Magazine (MD-60P), Audio Connection Cord

### DISC

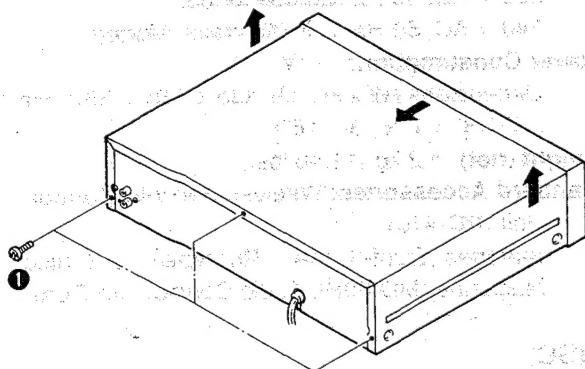
**Type:** Compact Disc  
**Playing Time:** Approx. 60 min.  
**Diameter:** 120 mm  
**Thickness:** 1.2 mm  
**Scanning Velocity:** 1.2 ~ 1.4 m/sec  
**Track Pitch:** 1.6  $\mu$ m

\* Improvements may result in specification or feature changes without notice.

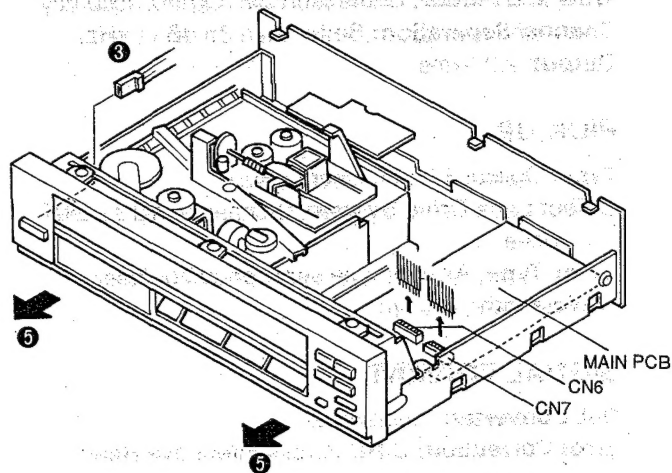
# DISASSEMBLY INSTRUCTION

## TOP COVER REMOVAL

- ① Remove screws from the TOP COVER and lift it up in the direction of the arrow.

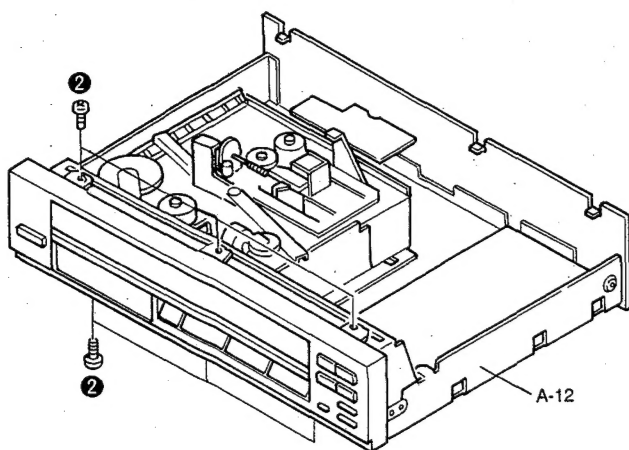


- ③ Remove the flat cable with 4P connector connecting to the power supply PCB from the power switch PCB.
- ④ Remove the connection of CN6, 7 (2 pcs) from the MAIN PCB.
- ⑤ Pull out the FRONT PANEL forward to remove it.



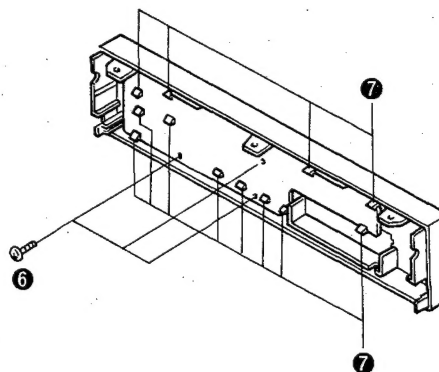
## FRONT PANEL REMOVAL

- ② Remove screws from the FRONT PANEL and remove the screw with ground wire connecting to the CHASSIS (A-12).



## CONTROL PCB REMOVAL

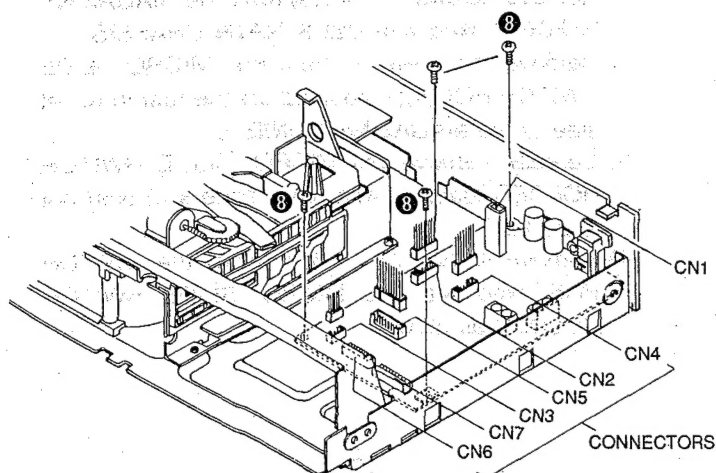
- ⑥ Remove screws (3 pcs) from the CONTROL PCB.
- ⑦ Pull out plastic tabs (12 pcs) carefully from the CONTROL PCB to remove it.





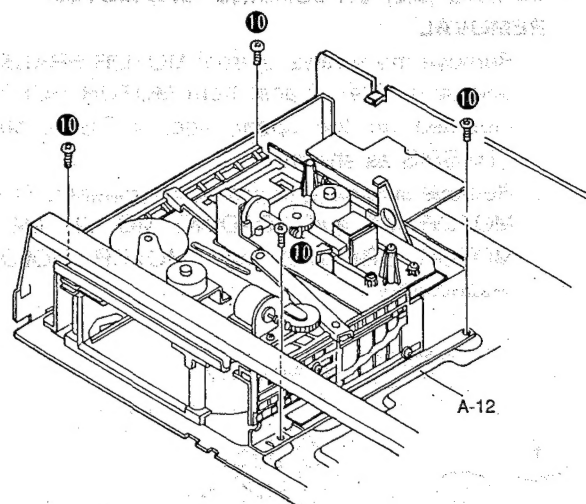
### MAIN PCB REMOVAL

- ⑧ Remove screws and connectors CN1, 2, 3, 4, 5, 6, 7, (7 pcs) from the MAIN PCB.
- ⑨ Pull out the MAIN PCB carefully.



### CD DECK MECHANISM ASS'Y REMOVAL

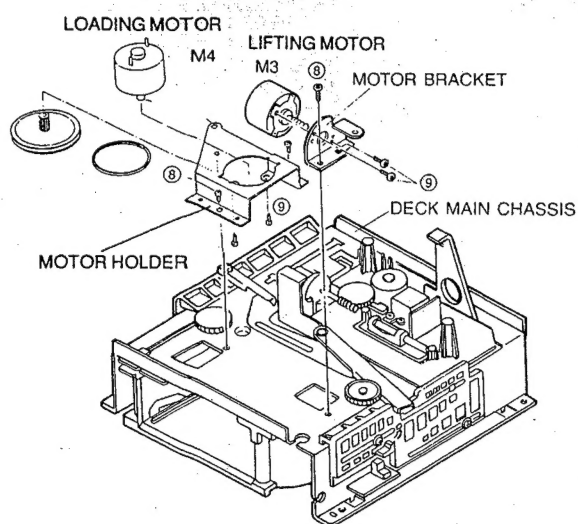
- ⑩ Remove screws from the bottom side of the CHASSIS (A-12).



# DISASSEMBLY INSTRUCTIONS FOR DECK MECHANISM SECTION

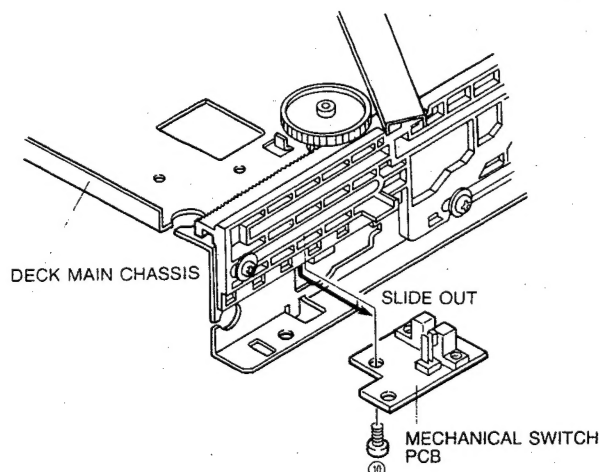
## 1. LIFTING (M3) OR LOADING (M4) MOTOR REMOVAL

- 1) Remove the screws ⑧ from MOTOR BRACKET and screws ⑨ (2 pcs) from MOTOR HOLDER mounted on the upper side of DECK MAIN CHASSIS as shown.
- 2) Remove screws ⑨ (2 pcs) which mount LIFTING MOTOR M3 and LOADING MOTOR M4 on MOTOR BRACKET and MOTOR HOLDER respectively.



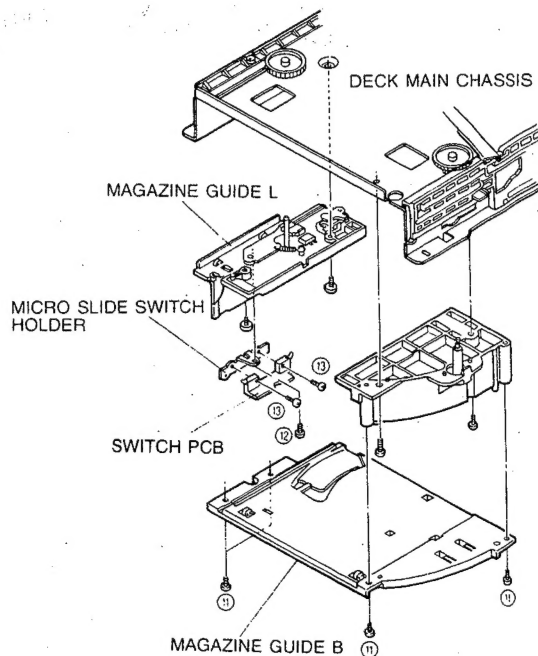
## 2. MECHANICAL SWITCH PCB REMOVAL

- 1) Remove the screw ⑩ from the MECHANICAL SWITCH PCB mounted on the front right side of the DECK MAIN CHASSIS.
- 2) Slide out the PCB through the opening located on the side of DECK MAIN CHASSIS as shown.



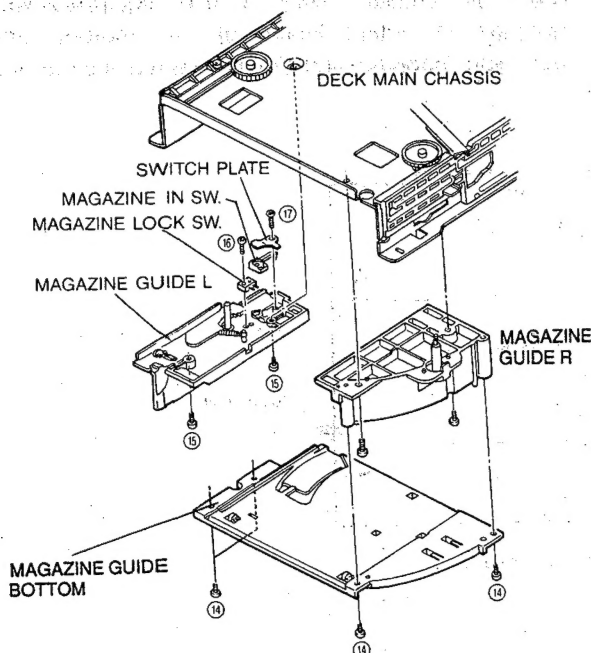
## 3. SWITCH PCB REMOVAL

- 1) Remove screws ⑪ (4 pcs) from the MAGAZINE GUIDE B fixed with DECK MAIN CHASSIS.
- 2) Remove the screw ⑫ from the MICRO SLIDE SWITCH HOLDER mounted on the rear front left side of the MAGAZINE GUIDE L.
- 3) Carefully, remove the MICRO SLIDE SWITCH HOLDER together with small rollers (2 pcs) not to be lost.
- 4) Remove screws ⑬ (2 pcs) from the SWITCH PCB fixed with the MICRO SLIDE SWITCH HOLDER as shown.



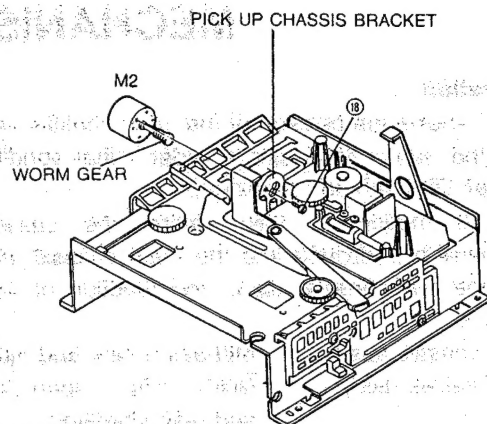
#### 4. MAGAZINE LOCK SWITCH OR MAGAZINE-IN SWITCH REMOVAL

- 1) Remove screws ⑭ (4 pcs) from the MAGAZINE GUIDE BOTTOM fixed with DECK MAIN CHASSIS.
- 2) Remove screws ⑮ (2 pcs) from the MAGAZINE GUIDE L, mounted on the left side of DECK MAIN CHASSIS and pull it downward.
- 3) Remove the screw ⑯ from the MAGAZINE LOCK SWITCH, mounted on the MAGAZINE GUIDE L.
- 4) Remove the screw ⑰ together with the SWITCH PLATE from the MAGAZINE-IN SWITCH mounted on the MAGAZINE GUIDE L.



#### 5. FEEDING MOTOR (M1) REMOVAL

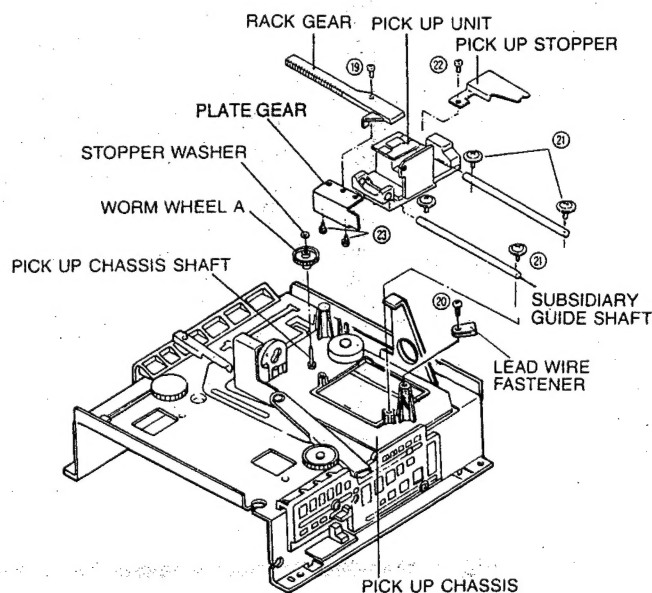
- 1) Remove screw ⑱ from the PICK UP CHASSIS bracket, fixed with the FEEDING MOTOR M2.
- 2) Pull out the FEEDING MOTOR M2 with the WORM GEAR through the upper hole of the PICK UP CHASSIS bracket to remove it as shown.



#### 6. PICK UP REMOVAL

- 1) Pull up the STOPPER WASHER. Then pull out the WORM WHEEL A from the PICK UP CHASSIS shaft.
- 2) Remove the screw ⑲ from the RACK GEAR mounted on the PICK UP unit.
- 3) Remove the screw ⑳ and the LEAD WIRE FASTENER from the post of the PICK UP CHASSIS.
- 4) Remove screws ㉑ (4 pcs) on each of the GUIDE SHAFT and the SUBSIDIARY GUIDE SHAFT mounted on the dent portion of the PICK UP CHASSIS and then carefully pull out the PICK UP UNIT together with the GUIDE SHAFT so that both of the GUIDE SHAFT will not fall off.
- 5) Remove the screw ㉒ from the PICK UP STOPPER, fixing the PICK UP UNIT.
- 6) Remove screws ㉓ (2 pcs) and the PLATE GEAR fixing with the PICK UP UNIT.

**Caution:** In handling this pick-up without APC circuit, be sure that you wear a wrist band (1MΩ) to prevent accidents due to static discharges.



# MECHANISM DESCRIPTION

## 1. Operation

Fig. 1 shows the position of the main chassis ass'y and the sub-chassis ass'y under initial condition (power ON, without magazine).

For lift motion at disc select, the cassette mechanism is divided into the main chassis ass'y and the sub-chassis ass'y, and function of each block is;

Main chassis ass'y ..... Magazine lock and eject  
Sub-chassis ass'y ..... Disc tray open/close and disc chucking

A lift motor and a loading motor are attached to the main chassis as the driving source and power is transmitted from the main chassis to the sub-chassis through interlock of the following parts.

Operation	Main chassis ass'y	Sub-chassis ass'y
Lifting	Cam groove of guide R and L	Guide shaft
Disc tray open/close and chucking	Driving rack boss	Cam face of loading arm A

The main chassis ass'y is also equipped with switches to detect timing of the motors, and revolution, stopping, and direction shift of the motors.

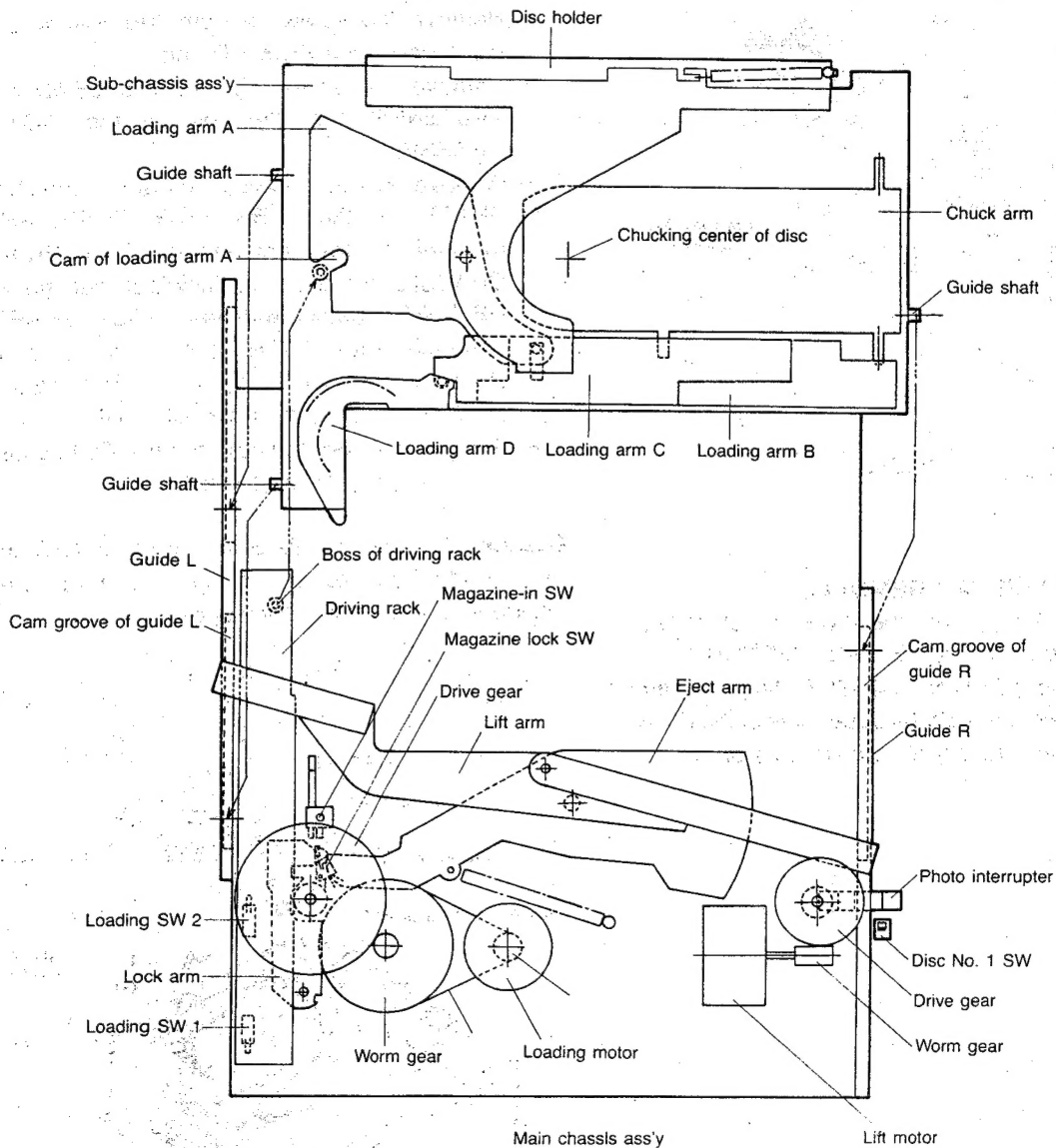


Fig. 1 Position of main chassis ass'y and sub-chassis ass'y under initial state

Fig. 2 shows a time chart of the cassette from insertion of a magazine to selection of disc No. 3 and to the end of eject. Referring now to Fig. 2, an outline description of the cassette mechanism appears in the following text.

Insert a magazine and turn ON the magazine lock switch and the magazine-in switch. Then the magazine is locked to the main chassis ass'y, the loading motor turns clockwise to open disc No. 1 tray, disc No. 1 is loaded, and the disc is chucked. (stop state)

Disc No. 1 is played when the play button is pressed under stop state. If any other disc than No. 1 is selected, No. 3 disc for instance, and the play button is pressed, however, the loading motor turns counter-clockwise and disc No. 1 tray is closed. Then the lift motor turns clockwise, the pulse is counted by the photo interrupter, and the sub-chassis ass'y is lowered to the point where the position of disc No. 3 is detected.

When the lift motion is complete, the loading motor turns clockwise to open disc No. 3 tray, disc No. 3 is loaded and chucked, and then is played.

If the eject button is pressed, the loading motor turns counter-clockwise, disc No. 3 tray is closed, and the magazine is unlocked. Then the magazine is discharged from the main chassis ass'y by spring force of the eject arm.

When the magazine lock switch is turned OFF, the loading motor reverses from counter-clockwise to clockwise direction. The revolution comes to a stop when loading switch 1 is turned ON while the main chassis ass'y is under initial state. Then the lift motor turns counter-clockwise to lift the sub-chassis ass'y to the position of disc No. 1 and the initial state is restored.

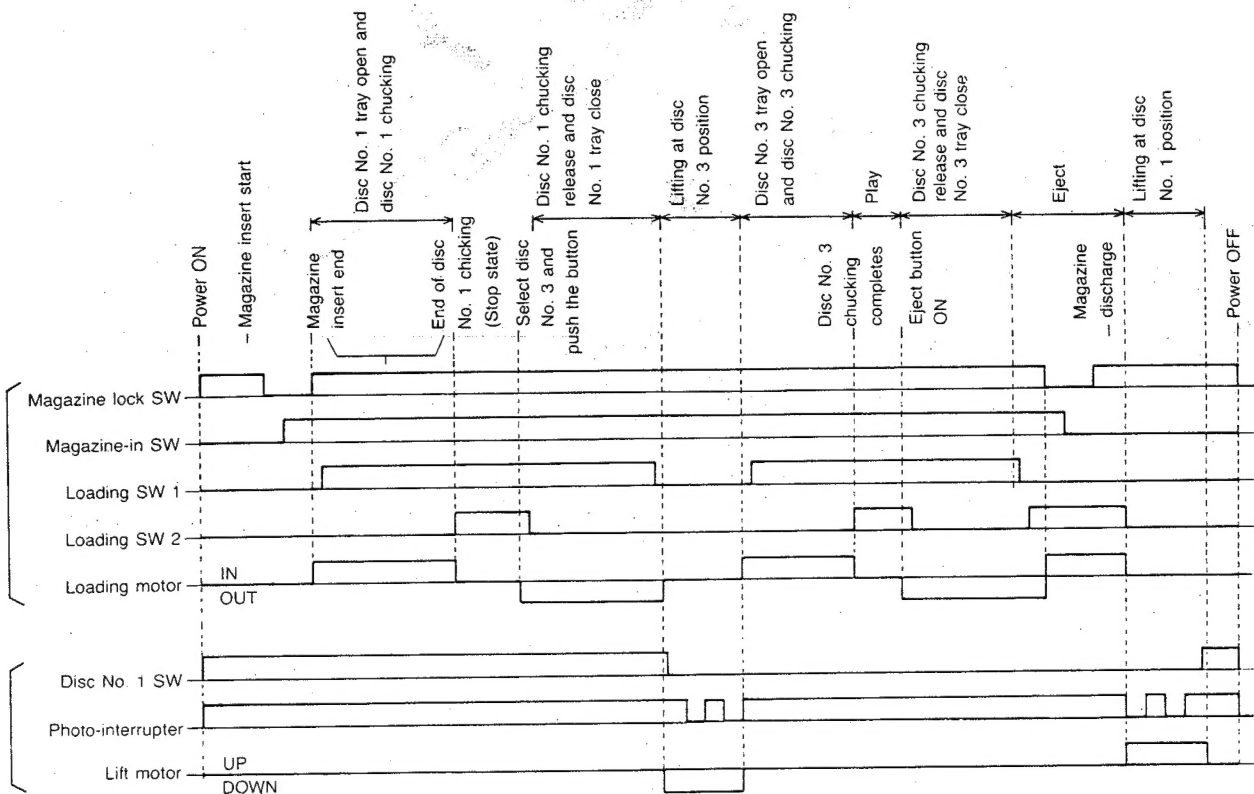


Fig. 2 Time chart from magazine insert to eject

Now, follow detailed description of each motion:

### 1-1. Magazine lock

Fig. 3. shows the process from insertion of a magazine in arrow ① direction to the condition where the magazine is fixed to the main chassis ass'y.

During the process from power ON to magazine fixing, the cassette performs the following operations in sequence:

a. The magazine pushes the projection of the eject arm, which turns in arrow ② direction.

b. The magazine pushes the click of the lock arm in arrow ③ direction, the lock arm turns in arrow ④ direction, and the magazine lock switch is turned OFF.

c. The magazine pushes the click of the magazine-in switch in arrow ⑤ direction, and the magazine-in switch turns ON.

d. The click of the lock arm goes into the fixing dent of the magazine, and the lock arm turns in arrow ⑥ direction to turn ON the magazine lock switch.

e. Magazine locking is complete.

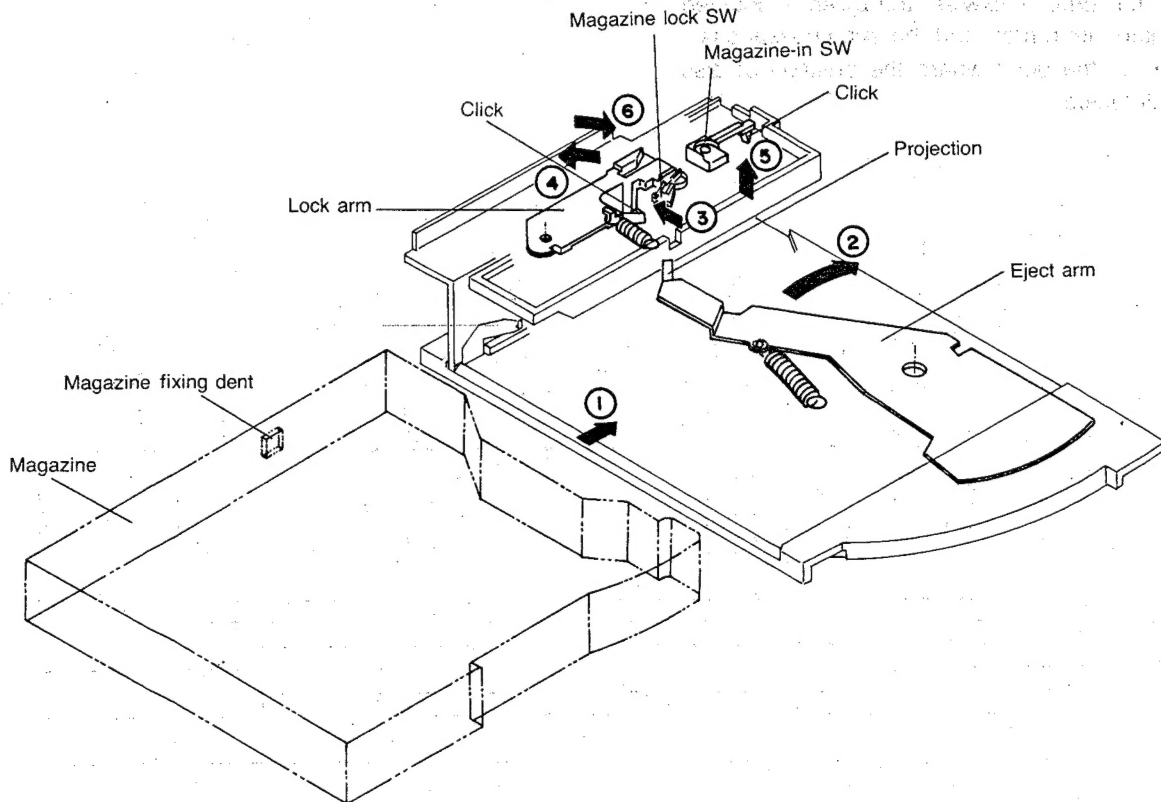


Fig. 3 Magazine locking

## 1-2. Disc tray open

Fig. 4 shows the process to open state of the disc tray.

- The loading motor turns in arrow ⑦ direction.
- The driving rack moves in arrow ⑧ direction through the motor pulley, belt, intermediate gear and driving gear.
- The loading arm D turns in arrow ⑨ direction through the loading arms A, B, and C.
- The top of the loading arm D pushes the end of the disc tray, which is then turned in arrow ⑩ direction.
- The dent of the disc tray comes in contact with the disc tray positioner of the sub chassis.
- Open motion of the disc tray is complete.

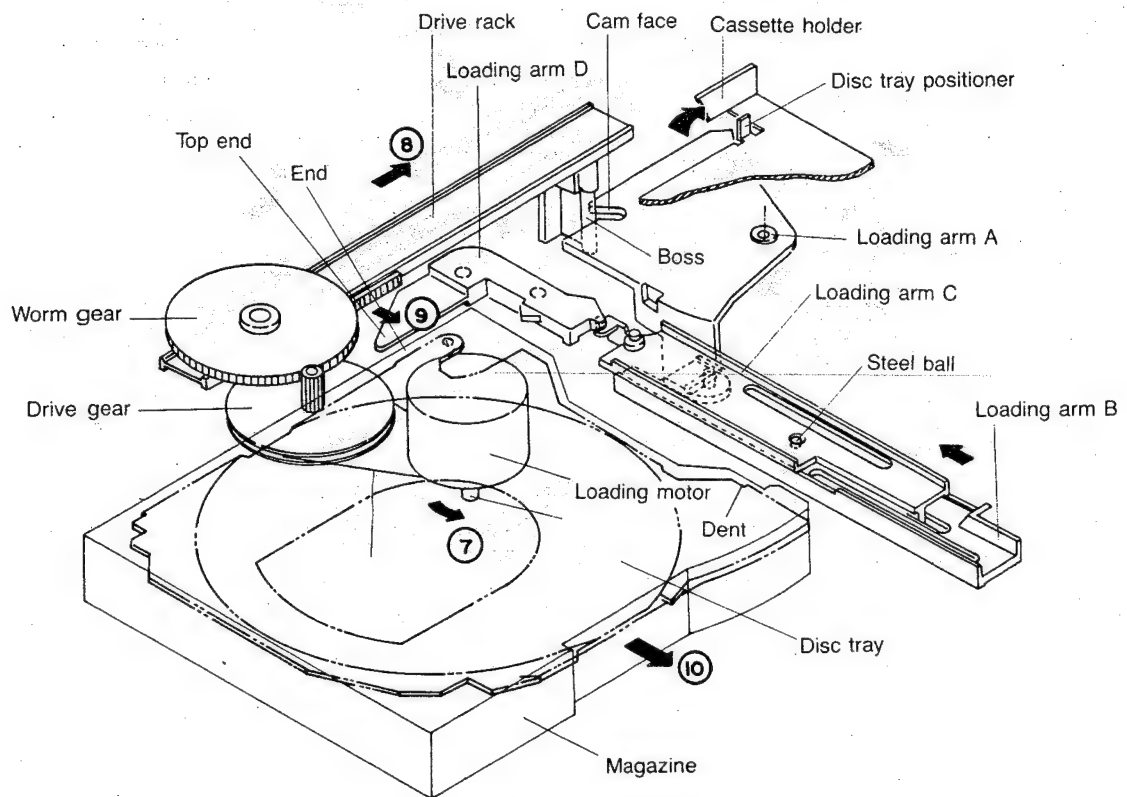


Fig. 4 Disc tray opening

### 1-3. Disc Chucking

Fig. 5 shows the process to chucking of the disc.

- a. The driving rack moves in arrow ⑪ direction.
- b. The loading arm B moves in arrow ⑫ direction.
- c. The chuck arm turns in arrow ⑬ direction along the cam surface of loading arm B.
- d. The disc starts chucking by the turntable and the chuck disc.

- e. The projection of the disc holder is pushed by loading arm A and the disc holder moves in arrow ⑭ direction.

- f. The projection of the driving rack turns ON loading switch 2 through the roller.

- g. The loading motor stops turning.

- h. Chucking motion of the disc is complete.

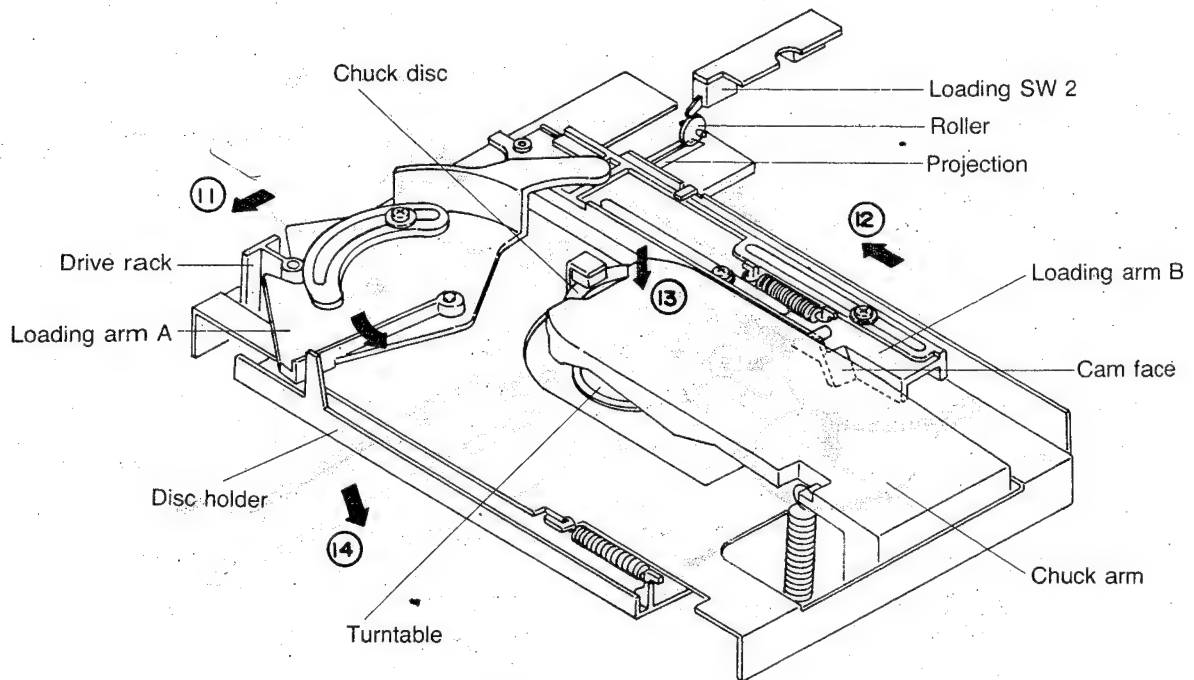


Fig. 5 Disc chucking



#### 1-4. Ejection

Fig. 6 shows the process after closing of the disc tray to magazine eject.

- a. Press the eject button.
- b. Chucking of the disc is released.
- c. The disc tray is closed.
- d. The driving rack moves in arrow ⑮ direction.
- e. The projection of the driving rack turns ON loading switch 2 and turns OFF loading switch 1 through the roller.
- f. The boss of the driving rack pushes the cam groove of the lock arm, which is then moved in arrow ⑯ direction.
- g. The click of the lock arm comes off the fixing dent of the magazine and magazine fixing is released.
- h. The eject arm is turned in arrow ⑰ direction by spring force.
- i. The magazine is pushed by the projection of the eject arm and is discharged from the cassette in arrow ⑱ direction.
- j. When the magazine lock switch is turned OFF, the loading motor changes turning direction from arrow ⑲ to arrow ⑳.
- k. The driving rack moves in arrow ㉑ direction.
- l. Loading switch 1 is turned ON and switch 2 is turned OFF by the projection of the driving rack through the roller.
- m. The loading motor stops turning.
- n. The eject motion is complete.

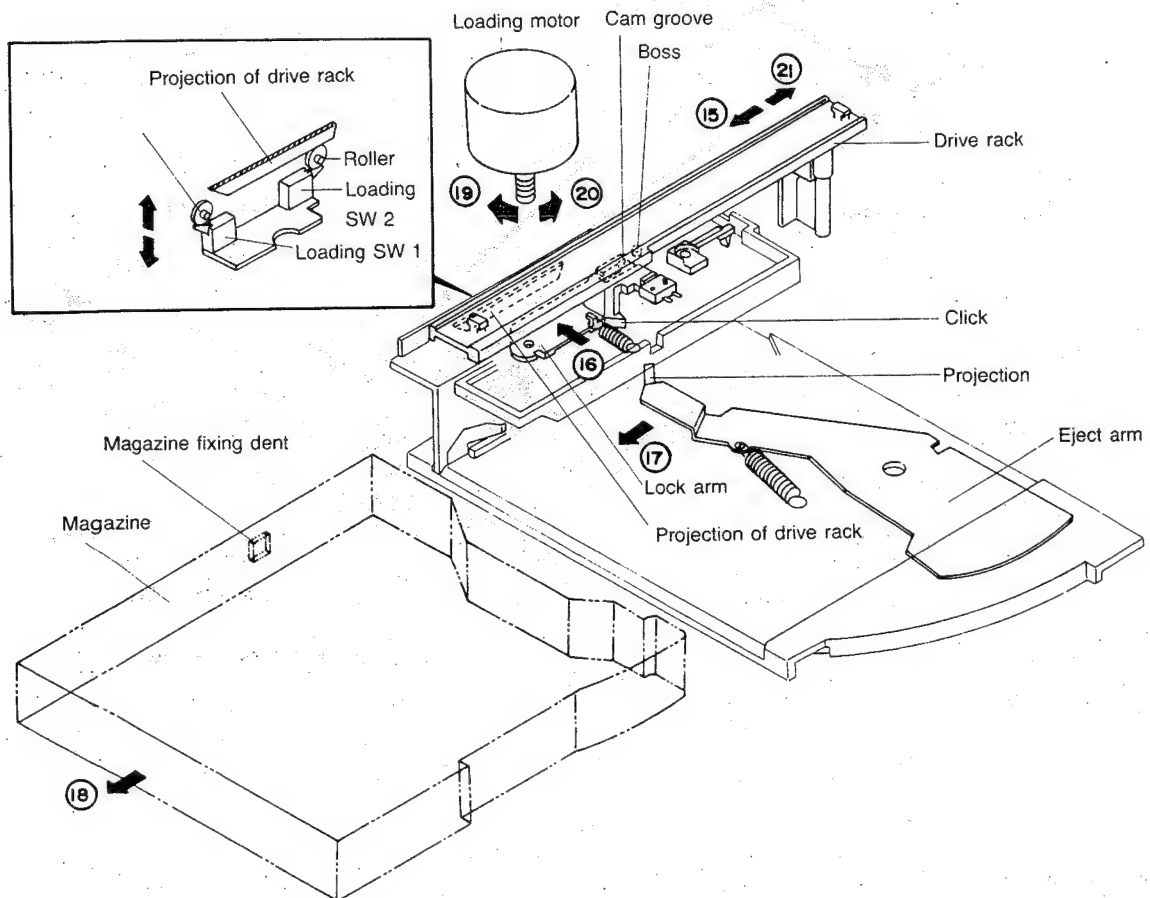


Fig. 6 Ejection

### 1-5. Lifting

Fig. 7 shows motion of the sub-chassis ass'y to the position of Disc No. 1.

- a. The lift motor turns in arrow ② direction.
- b. The guide R moves in arrow ③ direction through the worm and drive gears and guide L moves in arrow ④ through the lift arm at the same time.

- c. The disc No. 1 switch turns OFF.
- d. Select disc position is by the photo interrupter through the square detection hole of the guide R.
- e. The lift motor stops turning.
- f. The lifting motion completes.

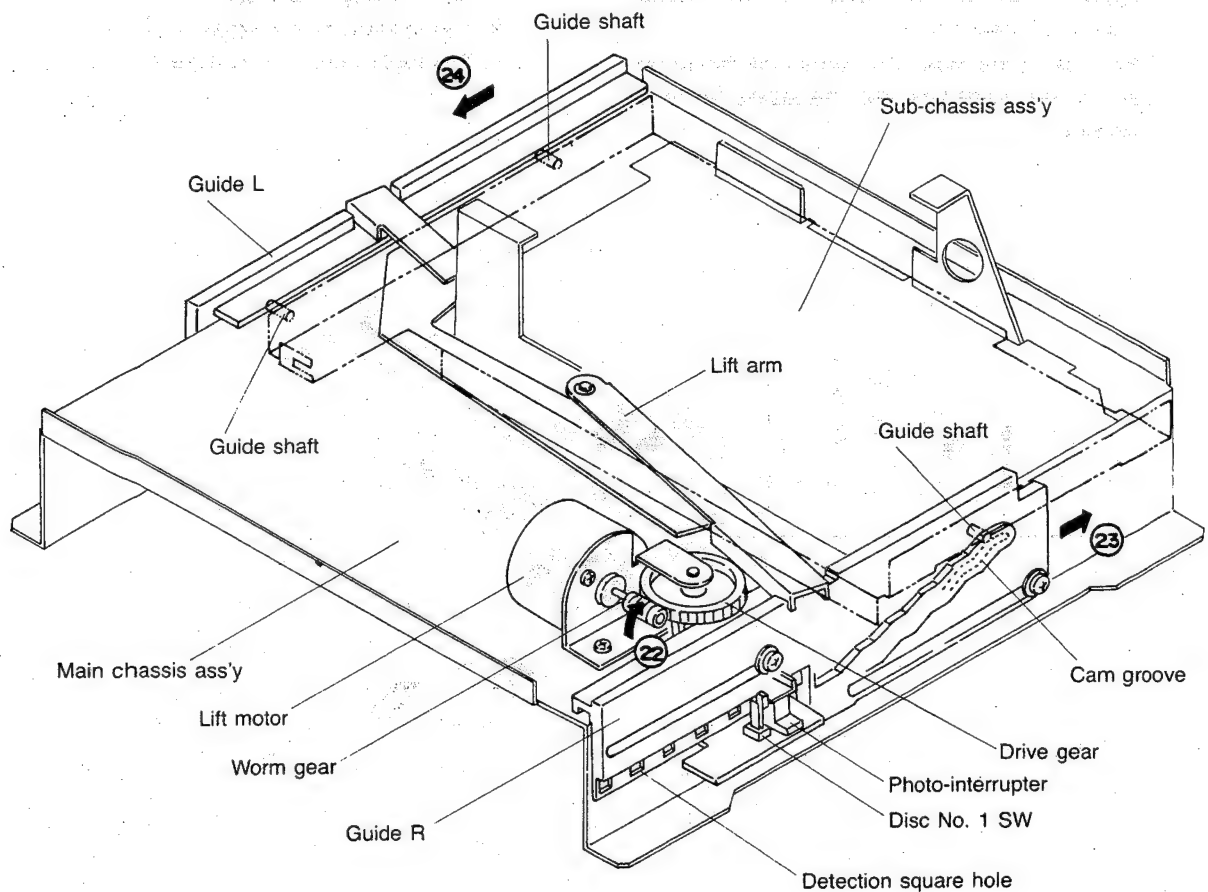


Fig. 7 Lifting

## 2. Disassembly procedure

### 2-1. Removing the sub-chassis ass'y

- 1) Make sure that the loading arm A is at the position of the continuous line shown in Fig. 1 (initial state). If the arm is at a position other than the initial stage (the position of the alternate long and two short dashes line for example.) turn the loading motor in arrow ① direction until loading arm A comes to the position of the initial state.

- 2) Remove the stepped screws 1 and 2. Then keep turning the lift motor in arrow ② direction to the point where the dismount grooves of guide R and L come to the dismount groove of the main chassis.

(Guide R moves in arrow ③ direction and guide L in arrow ④ direction.)

- 3) Hold up the sub-chassis ass'y in arrow ⑤ direction. Then it can be taken off the main chassis ass'y.

To re-assemble the sub-chassis ass'y, reverse the disassembly procedure.

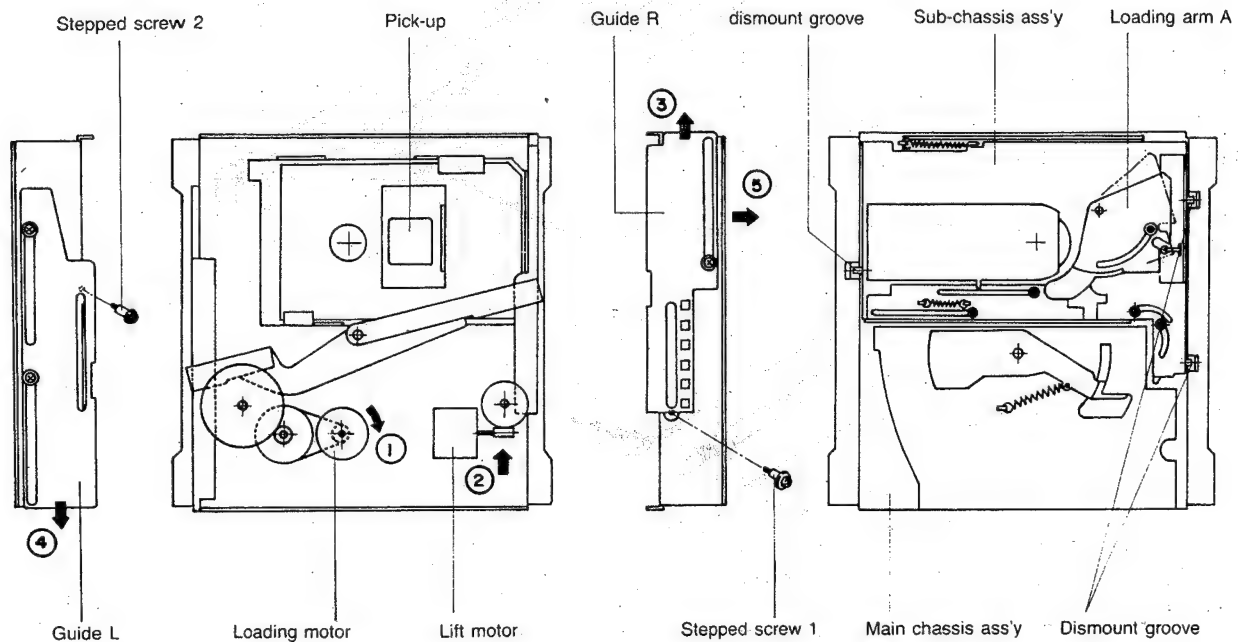


Fig. 1 Removing the sub-chassis

## 2-2. Removing the loading arms B and C

- 1) After removing the stepped screws, push loading arms B and C in arrow ⑥ direction and slide it to the position where it can be taken off the sub-chassis.
- 2) Remove loading arms B and C together in arrow ⑦ direction while keeping the loading springs attached. (Be careful not to misplace the steel ball.)

- 3) Tilt loading arm B as illustrated. Then remove the hook of the loading spring in arrow ⑧ direction.

To re-assemble loading arms B and C, reverse the above procedure.

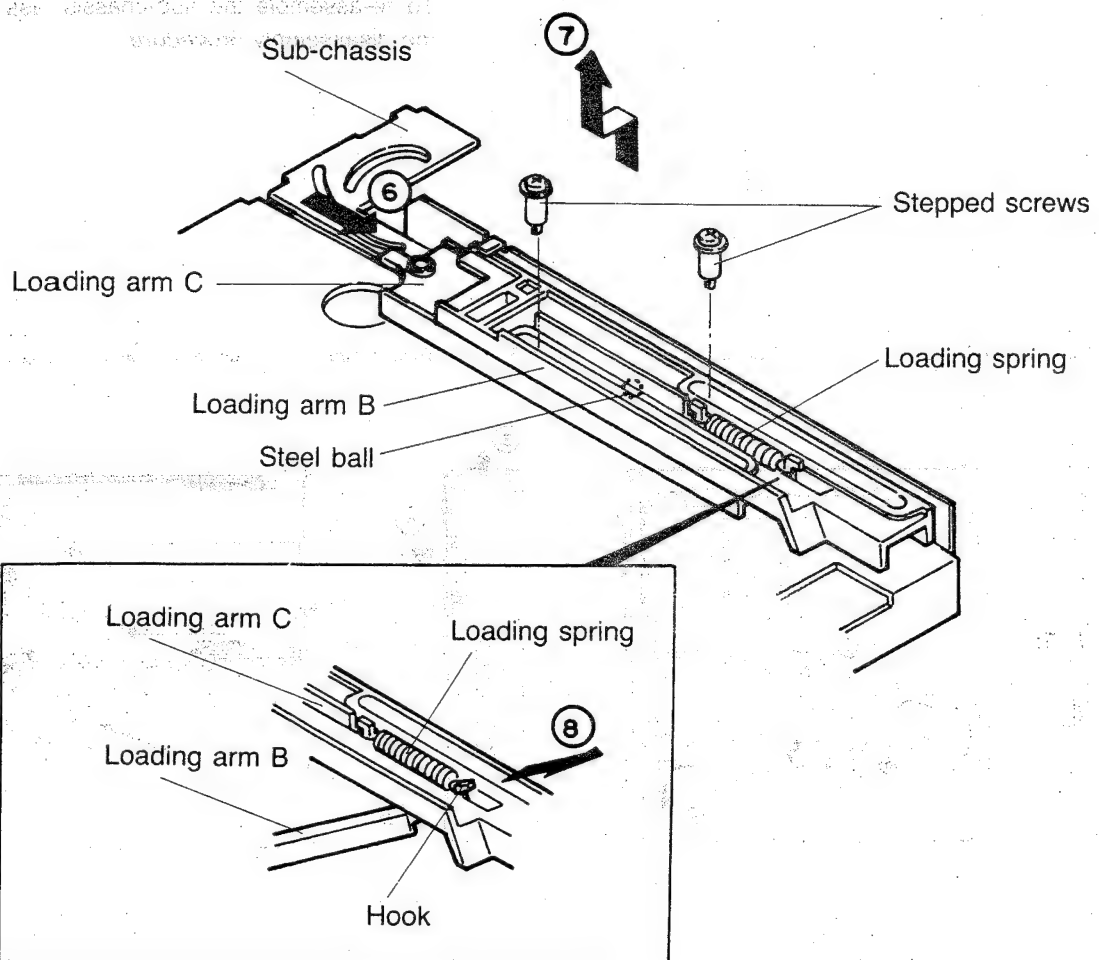


Fig. 2 Removing the loading arms B and C

### 2-3. Remove the disc holder

Remove the disc holder in arrow ⑩ direction while pushing the click of the cassette holder softly in arrow ⑨ direction with tweezers. To attach the disc holder, insert it in arrow ⑪ direction.

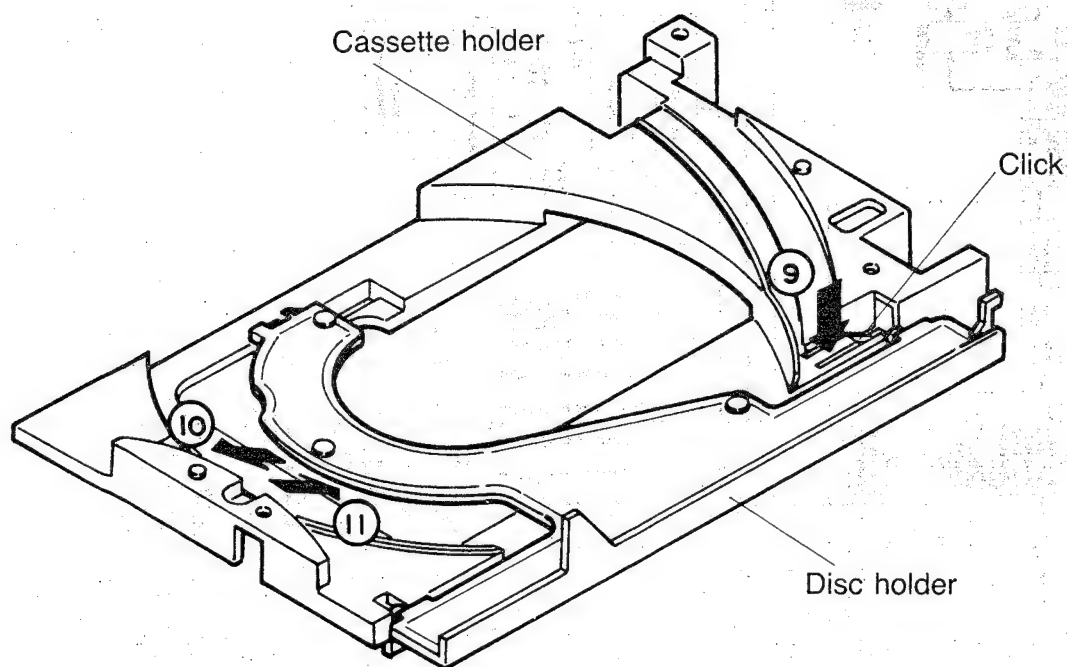
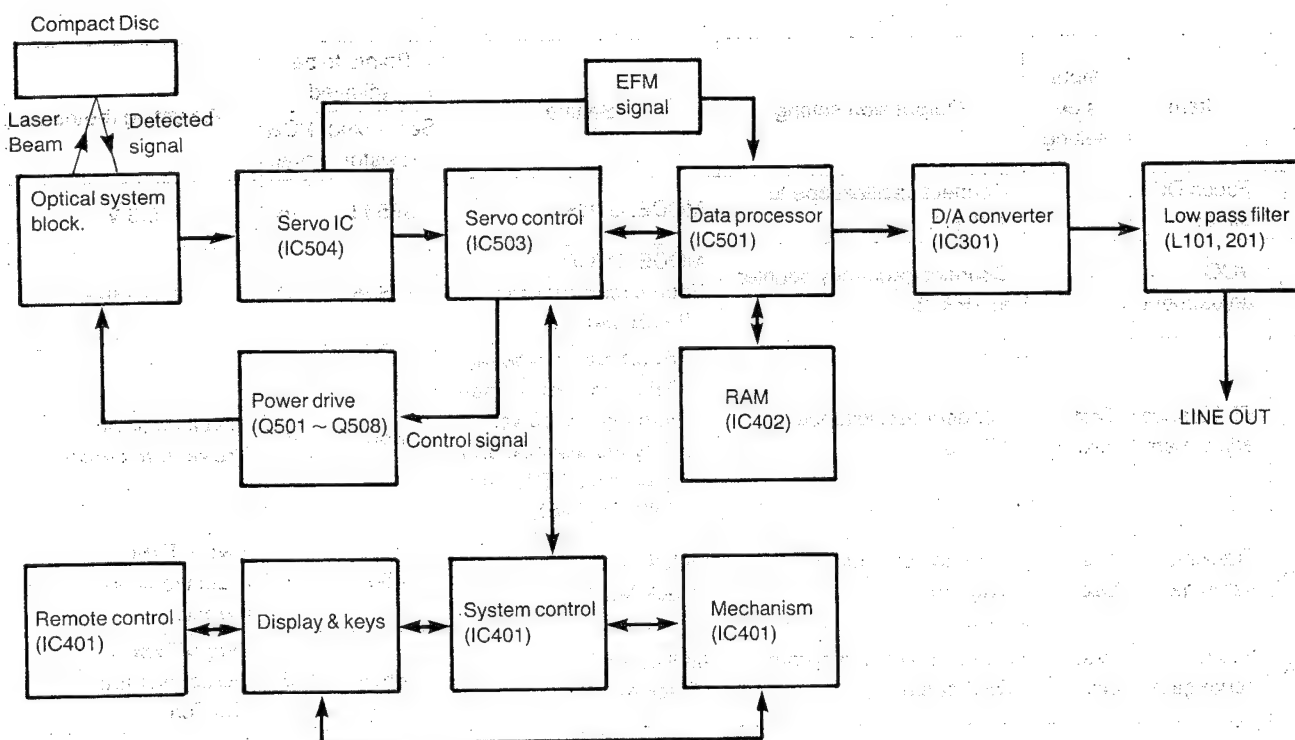


Fig. 3 Removing the disc holder



## CIRCUIT DESCRIPTION



The system configuration of this CD player is shown in the above figure. The general description of the operation in the state of play for this system is represented as follows;

At first, the signal detected from the disc with a three-beam laser pick-up is input to pick-up servo IC (IC504). Analog addition/subtractions processing is executed to output EFM (Eight to Fourteen Modulation) signals containing audio information along with synchronous clock, focus error signal, and tracking error signals. Then, servo control IC (IC503) inputs EFM signals so as to output data for phase corrections. Further, it outputs synchronous clock extracted from EFM signal.

Data processing IC (IC501) inputs these two signals, executes digital processing for EFM de-modulation, deinterleave, error correction, and then, outputs audio data containing audio information only.

This digital data is converted to analog data by IC (IC301) for D/A conversion.

Finally, after low-pass filters (L101, L201) exclude the components outside of the band, voice signal is output to line-out.

After the focus error signal and the tracking error signal, generated by pick-up servo IC, are subject to phase compensation, they are input to power drive Q501 ~ Q508 for power amplification. Moreover, by providing this output to each actuator for pick-up focus and tracking, laser beam position is controlled.

The constant linear speed control signal and the pick-up position control signal, generated by servo control IC, are processed through the low-pass filter, and then, input to power drive IC for power amplification.

By driving the individual disc motor and the pick-up feed motor by these outputs, the disc rotation (RPM) is controlled to enable the linear speed to be constant, resulting in exact control of pick-up position.

Meanwhile, IC (IC401) controls the CD player with the information input from each key. In other words, it processes track detection, and further, controls the functions for forward/reverse quick feed motion, play/pause, single track/all tracks repeat performance, and programmable performance. In addition, CD player status and track/in-process time are indicated on the display.

### Cassette control (Magazine loading/unloading)

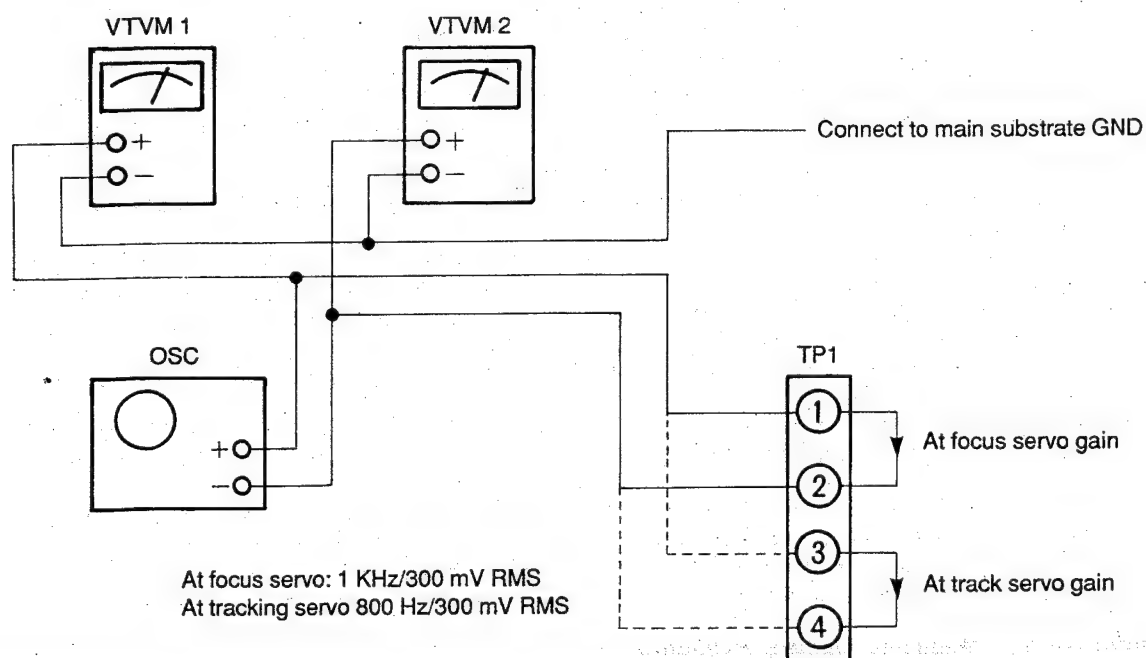
IC (401) is used for lift-up/lift-down of the cassette (disc selection), detection of cassette mode, and control of the loading/lifting motor.

In the remote control circuit, signals demodulated by the receiver are decoded by IC (401), and the corresponding keys are controlled.

## ADJUSTMENT PROCEDURE

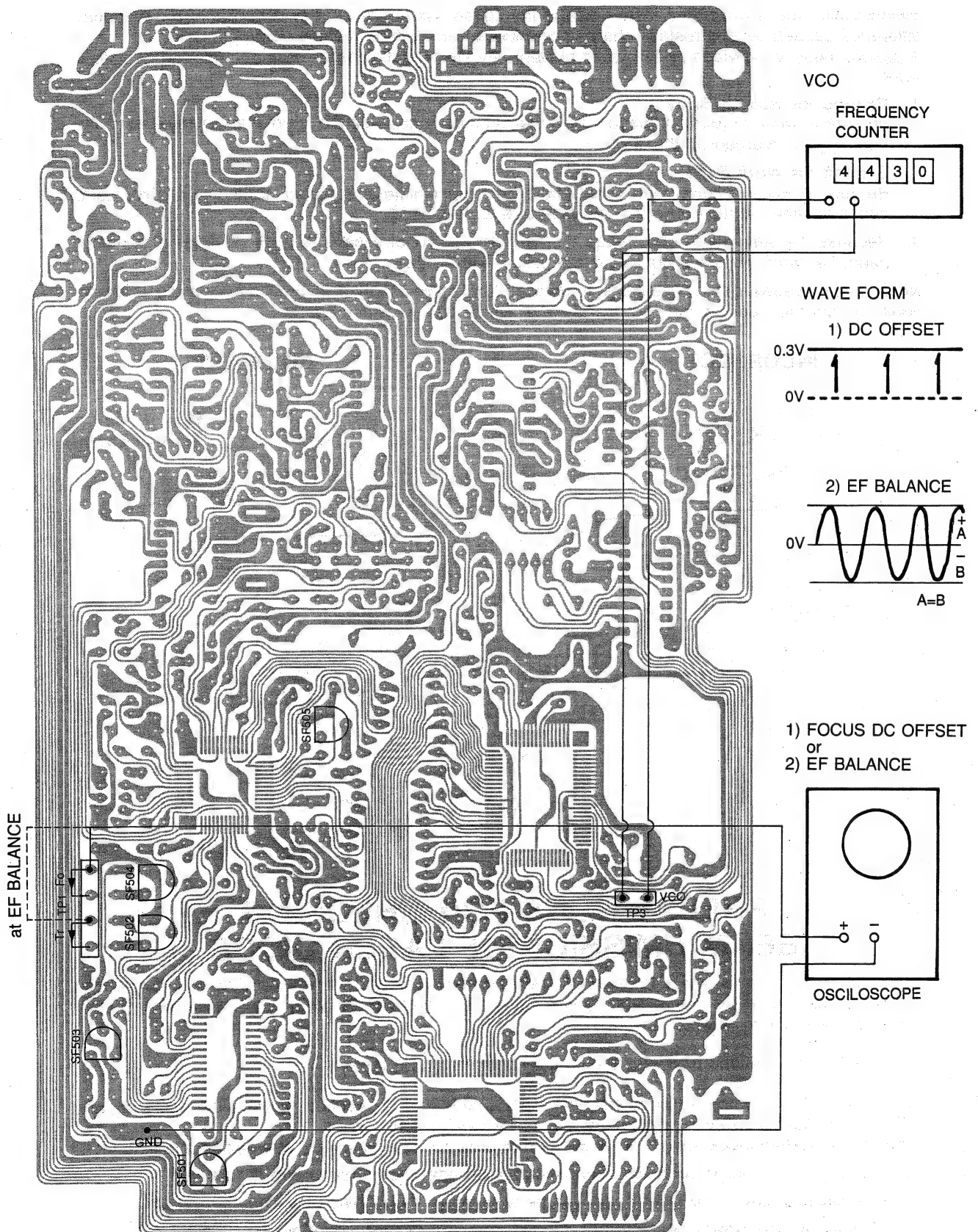
	Item	Input side setting	Output side setting	Setting	Points to be adjusted		Adjusting method
					Semi-fixed resistor	PCB map	
1	Focus DC offset		Connect oscilloscope to TP1 (1).	MODE: STOP	SF503	1-B	0.3 V
2	VCO adjustment		Connect frequency counter to TP3 (2)	MODE: STOP Short circuit between TP2 (2) and (3).	SF505	2-C	4.43 MHz
3	EF balance adjustment	Test disc	Connect oscilloscope to TP1 (3)	(1) Short circuit between TP4 and TP3 (1) then turn ON the power (2) Play the test disc and short circuit TP5 and TP2 (2) (GND).	SF501	1-A	Tracking error, Wave form center
4	Tracking servo gain	Test disc	Refer to connection diagram 1	MODE: PLY (Track No. 1)	SF502	1-B	Two VTVM indications are identical
5	Focus servo gain	Test disc	See connection diagram 1. OSC output	MODE: PLAY (Track No. 1)	SF504	1-B	Two VTVM indications are identical

**Connection diagram 1: Servo gain adjustment**





# EQUIPMENT CONNECTIONS



## INSTRUCTION FOR HANDLING OPTICAL SYSTEM BLOCK PICKUP

Electrostatic breakdown of the laser diode in the optical system block may occur due to a potential difference caused by electrostatic charge accumulated on clothing, human body, etc. A ground must be provided as follows to prevent any electrostatic charge during unpacking or repair work.

### 1. Ground for Human Body

Be sure to wear a grounding band ( $1M\Omega$ ) that is properly grounded to remove any static electricity that may be charged on the body.

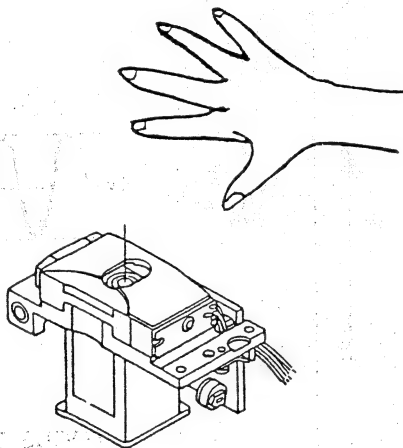
### 2. Ground for Work Bench

Be sure to place a conductive sheet ( $1M\Omega$ ) or copper plate with proper grounding on the work bench or other surface on which the pickup is to be placed.

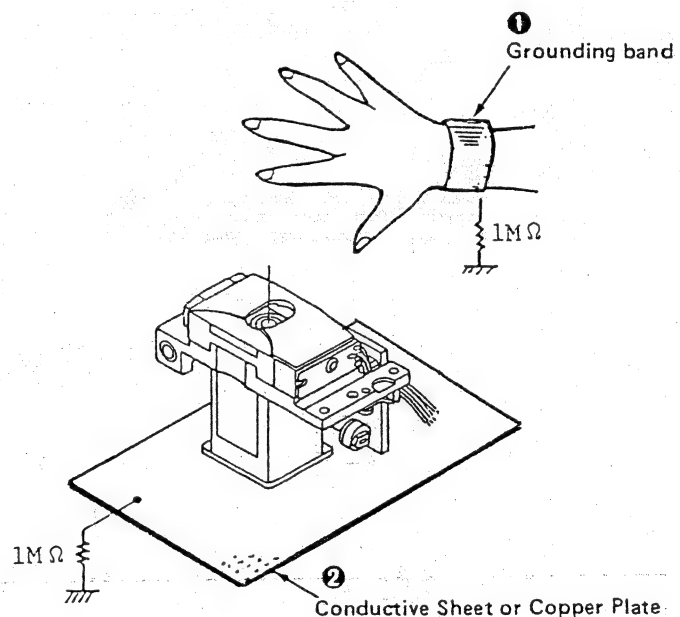
### 3. Because the static electricity charge on the clothing will not escape through the body grounding band, be careful to avoid contact of the pickup with clothing.

**Note:** Laser diodes are so susceptible to damage from static electricity that even if a static discharge does not ruin the diode, it can shorten its life or cause it to work improperly.

### INCORRECT



### CORRECT



## PRECAUTIONS FOR CHECKING BEAM EMISSION OF LASER DIODE

This laser beam of this unit is focused on the reflecting surface of the objective lens in the optical system block. Therefore, keep your eyes at least 12 inches (30cm) away from the objective lens when the laser diode is ON.

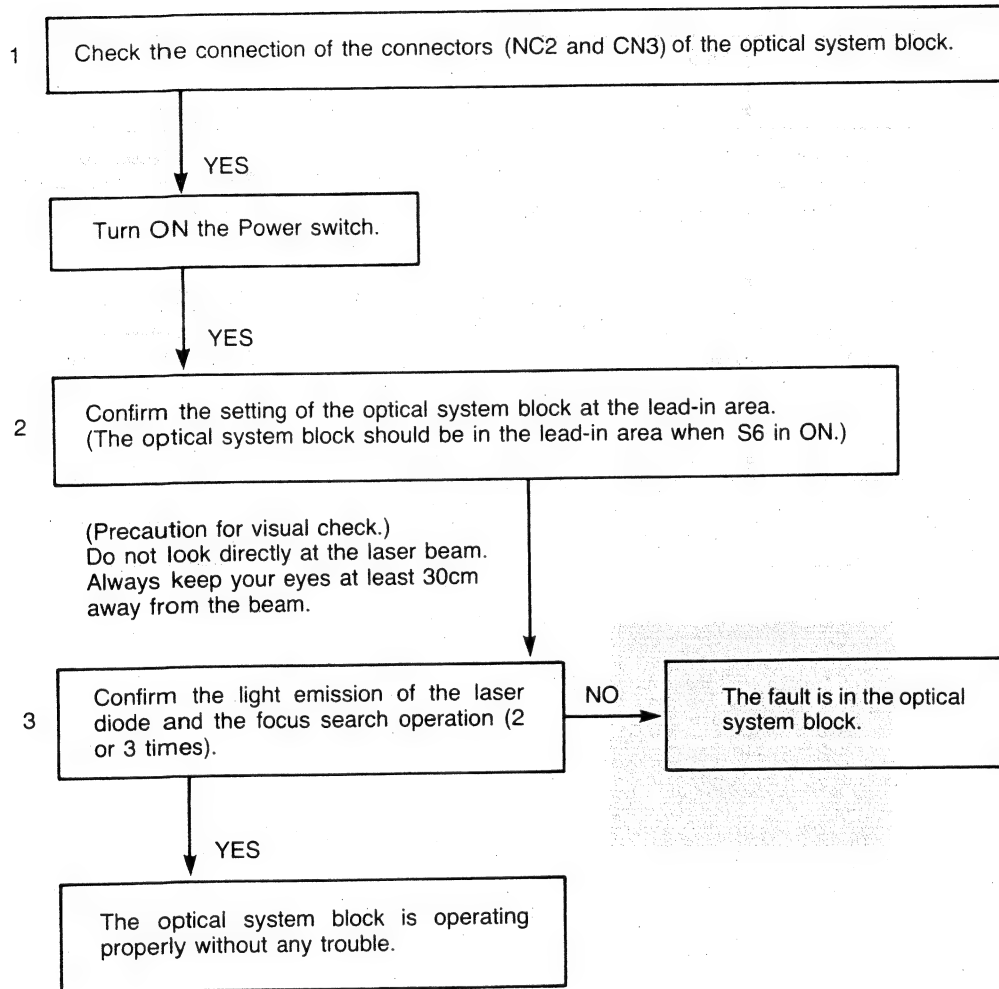
[Operation Check Method for Laser Diode and Focus Search Function]

When the POWER switch is turned ON after the chucking arm is removed, observe the objective lens and confirm that the following operations are performed properly.  
(The optical system block should be at the lead-in area position when it is checked at this time.)

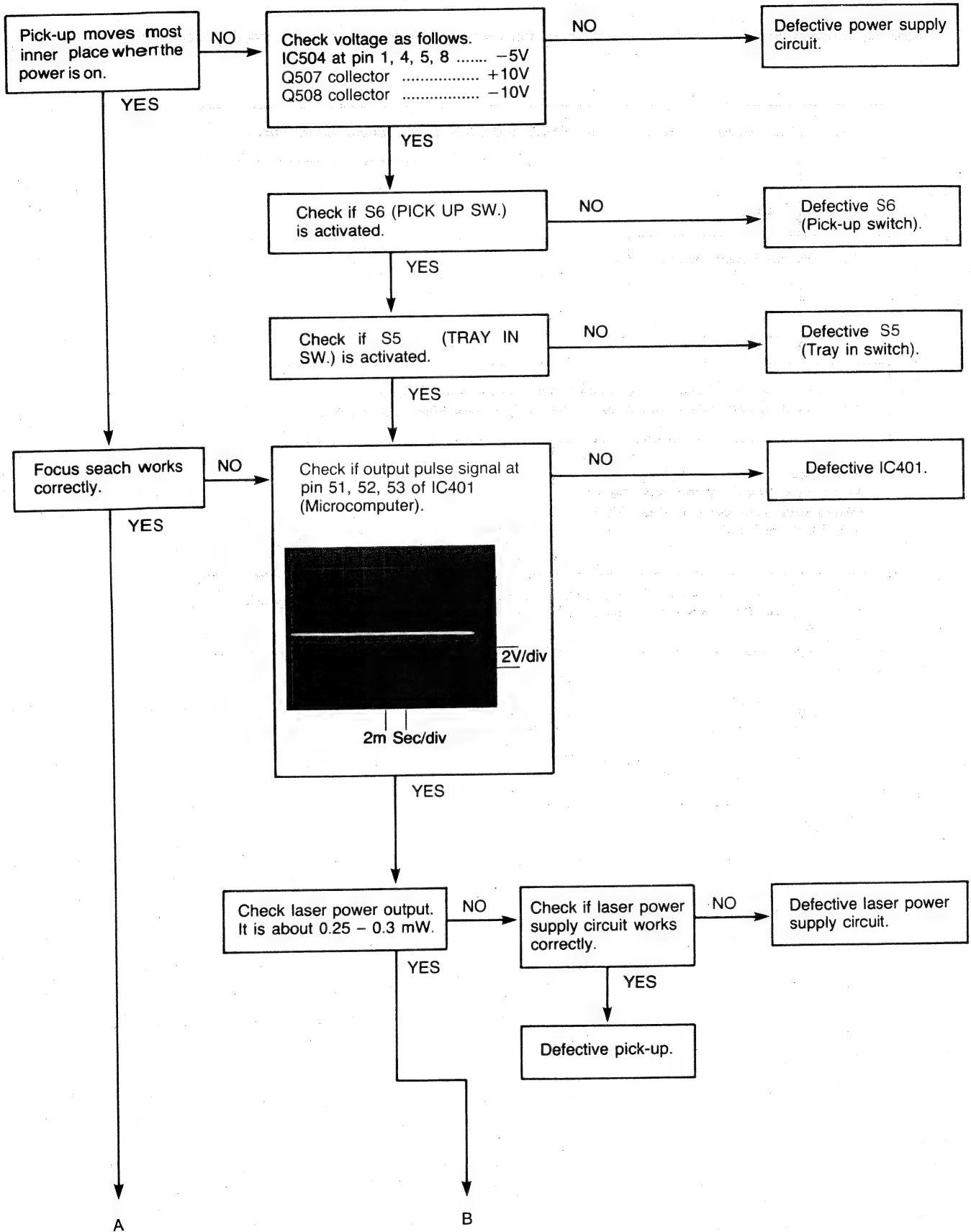
- (1) This disc table should be at the innermost position after the chucking arm is removed.
- (2) The diffused light of the laser beam can be seen when the POWER switch is turned ON.
- (3) Vertical (up and down) movement of the objective lens (2 or 3 times) will take place.

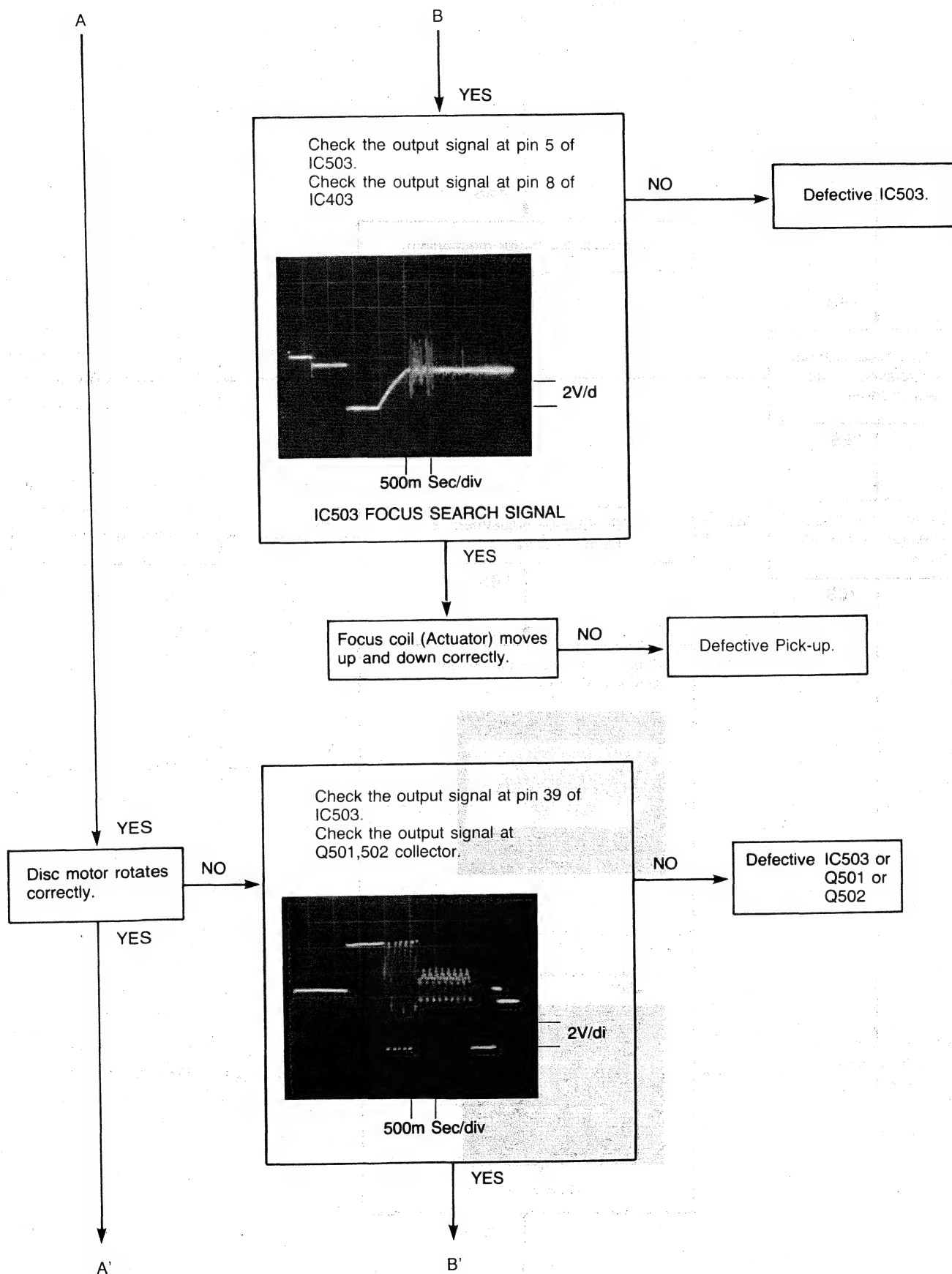
# TROUBLESHOOTING OF OPTICAL SYSTEM BLOCK (PICKUP)

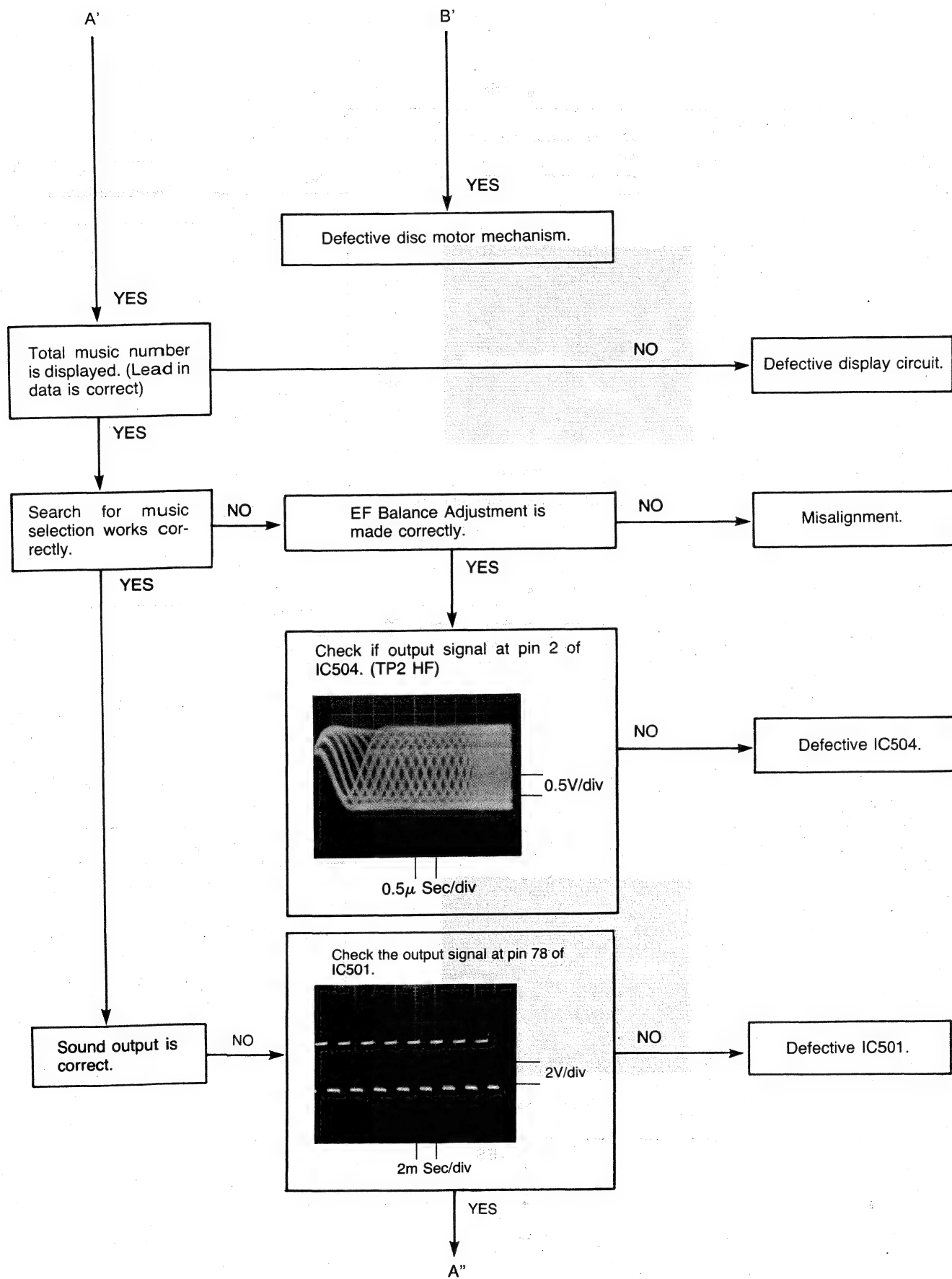
Apply the following procedure for troubleshooting to check whether the trouble is in the optical system block.

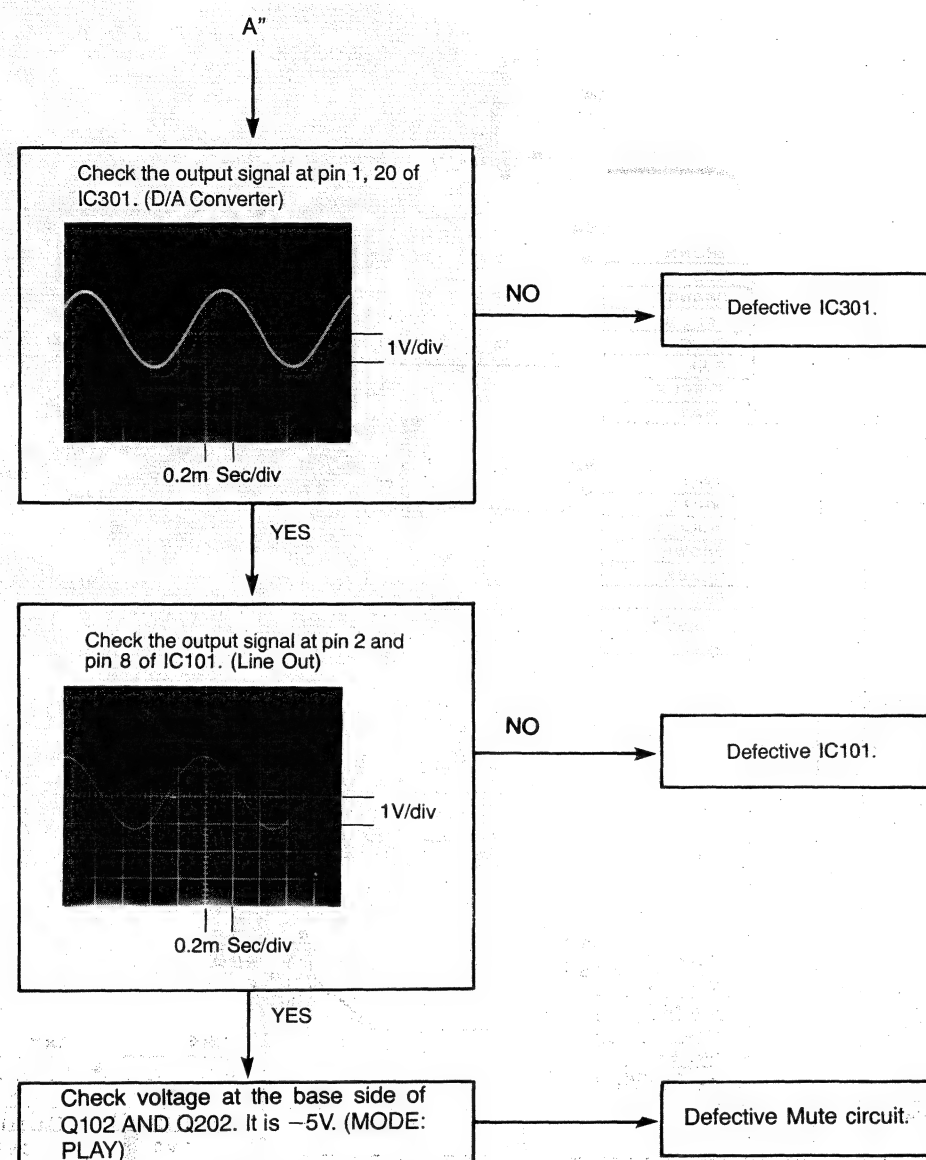


# TROUBLESHOOTING GUIDES



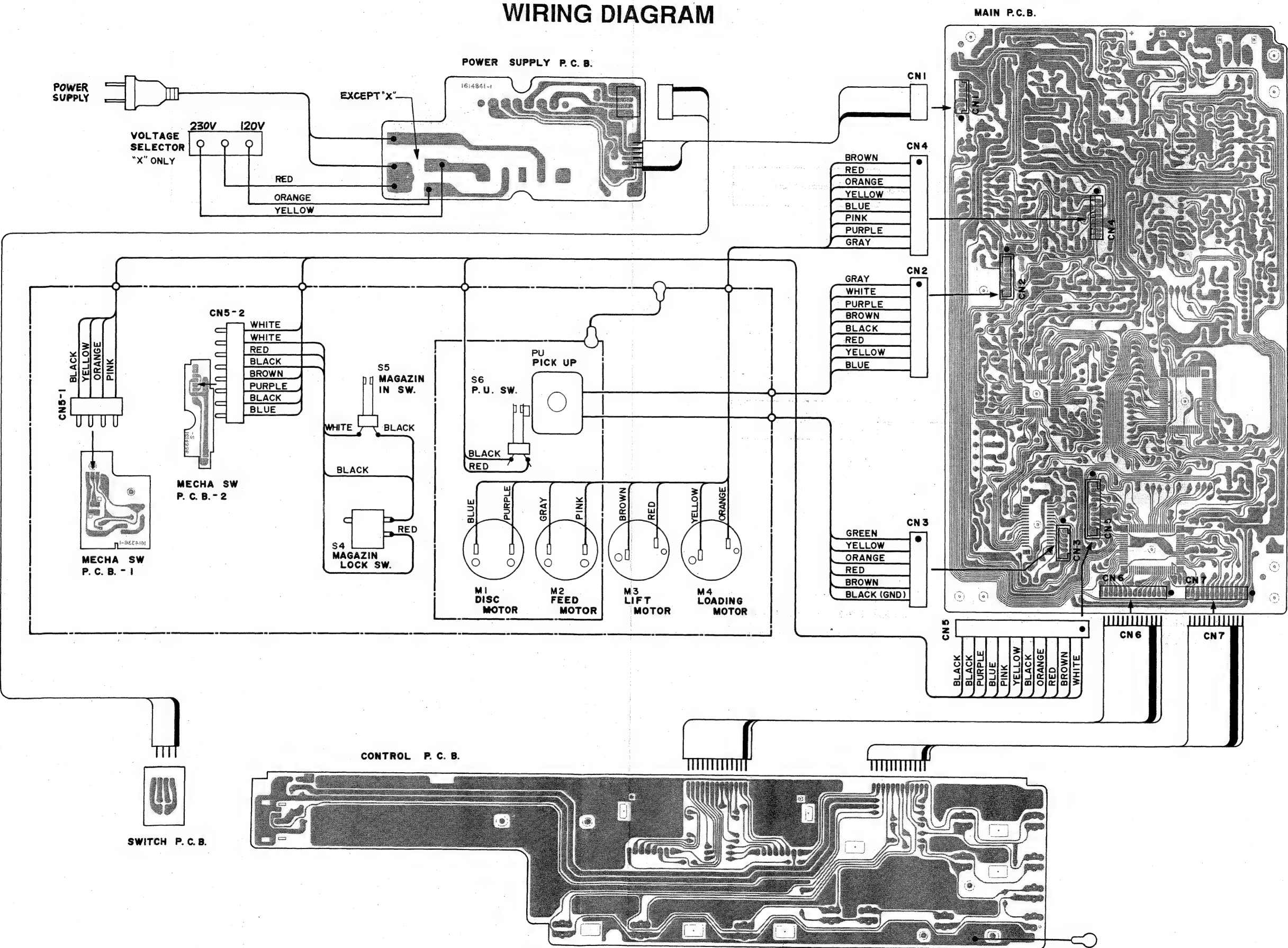






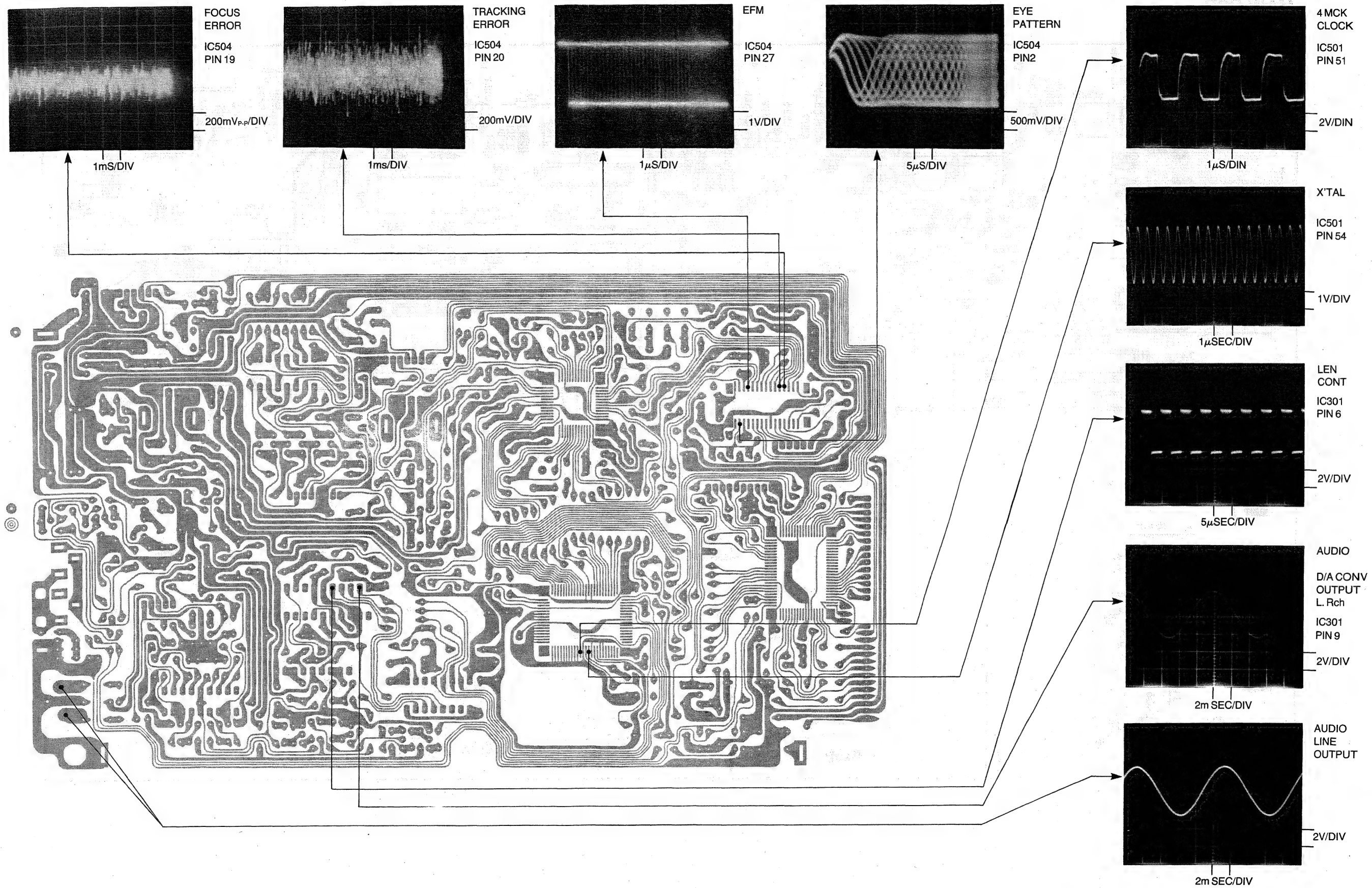


# WIRING DIAGRAM



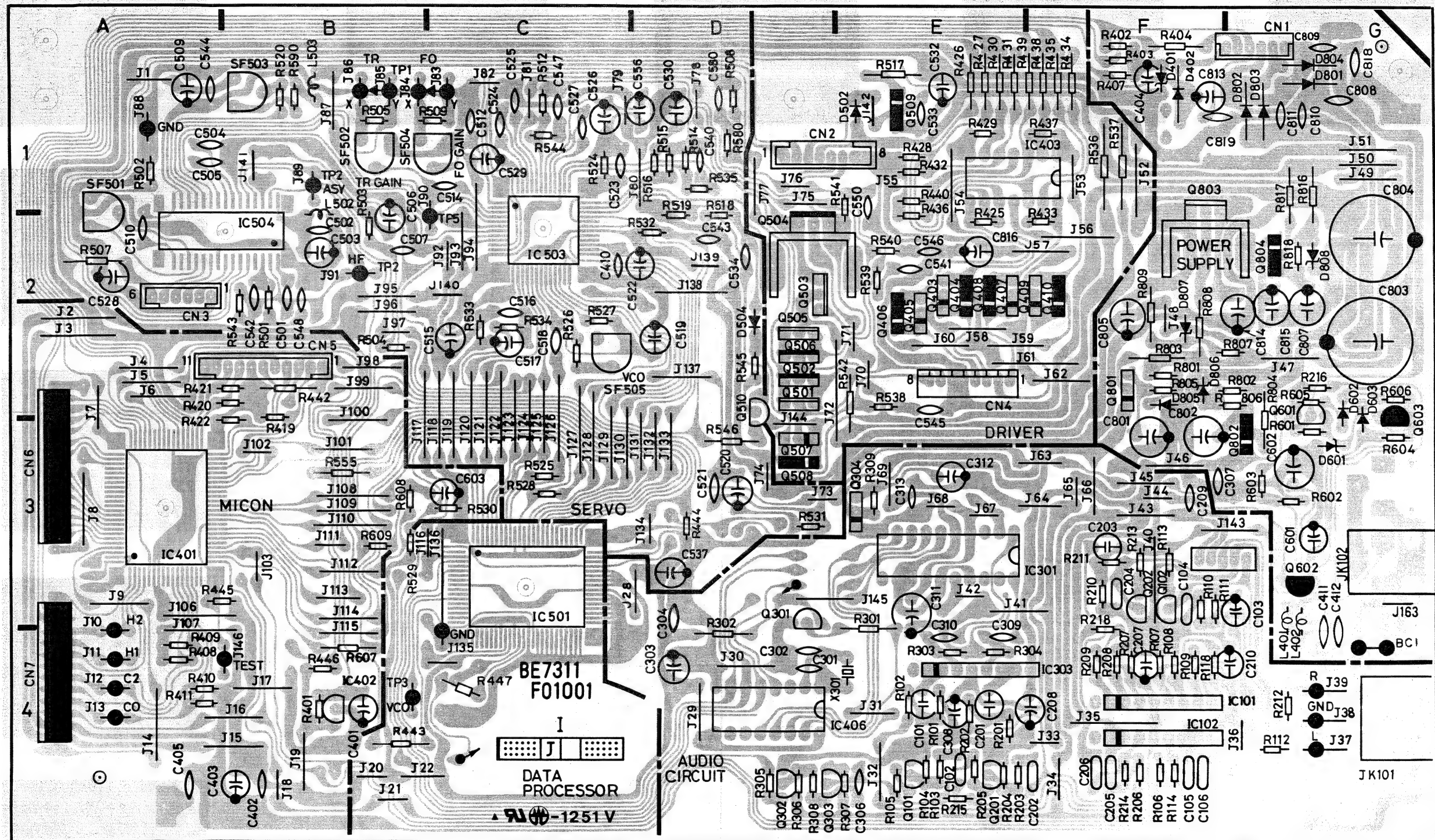


## WAVE FORM INFORMATION



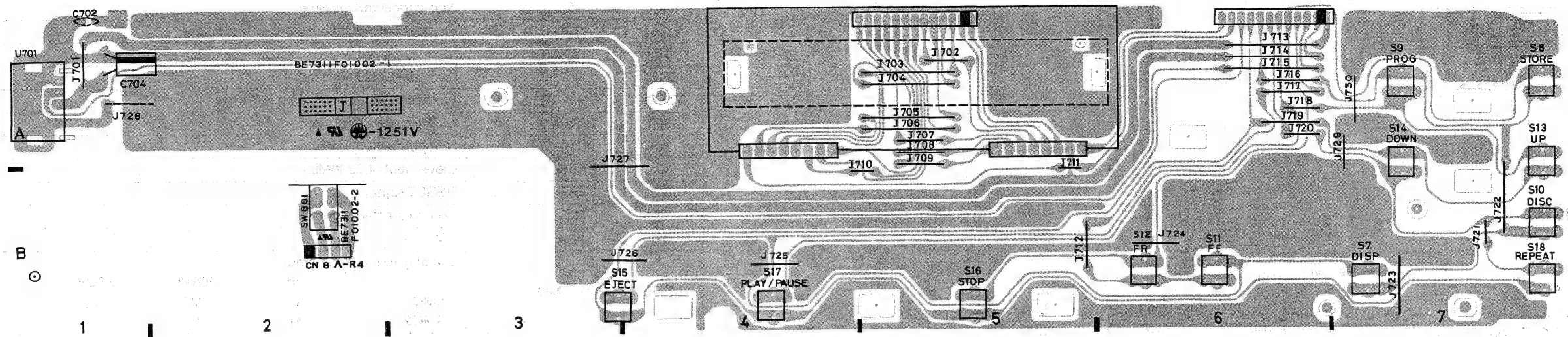


## MAIN PCB

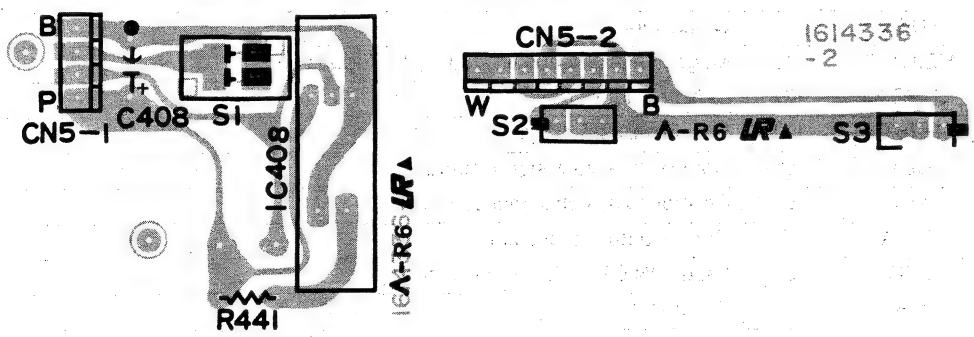




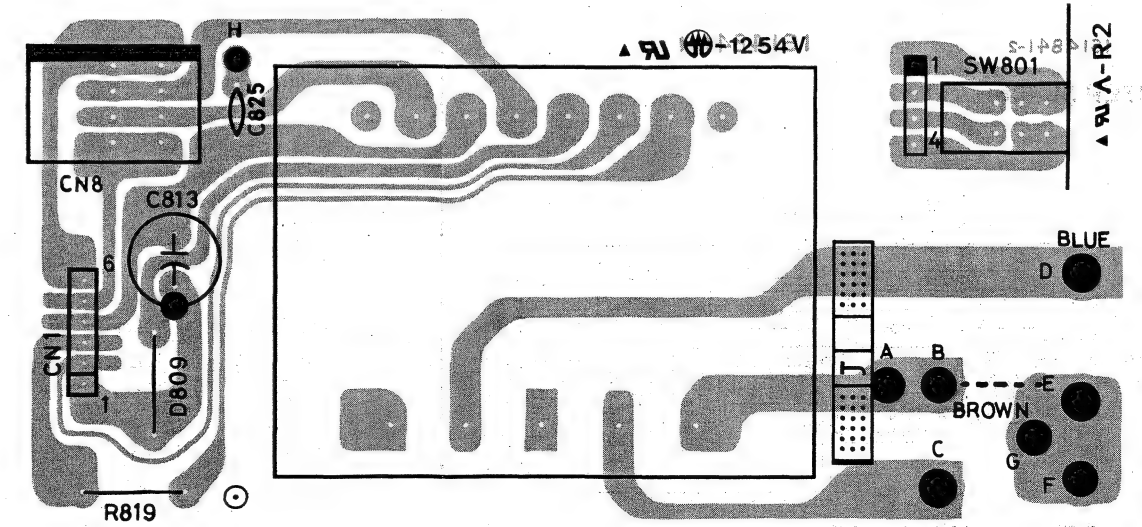
# CONTROL PCB



# MECHANICAL SWITCH PCB

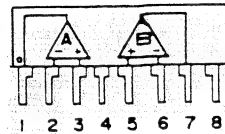


# POWER SUPPLY PCB

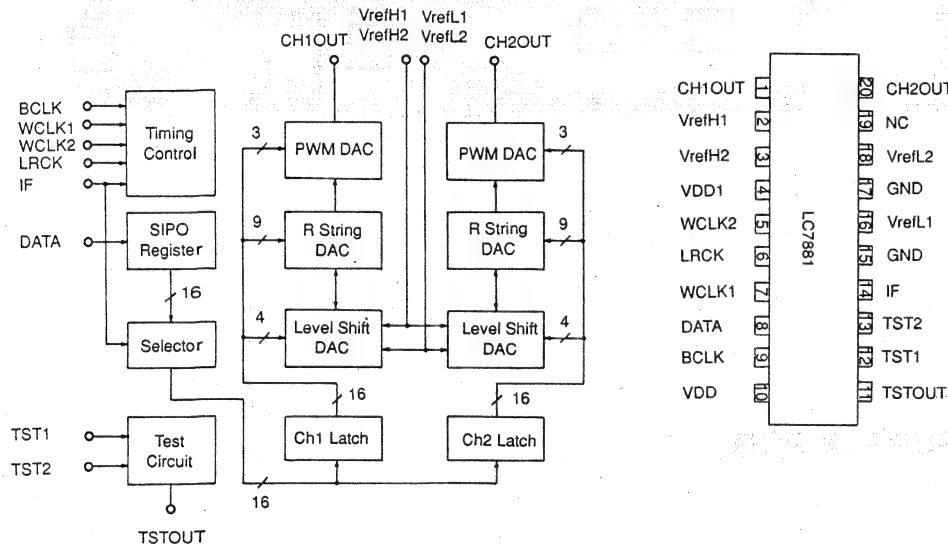


IC INTERNAL DIAGRAM

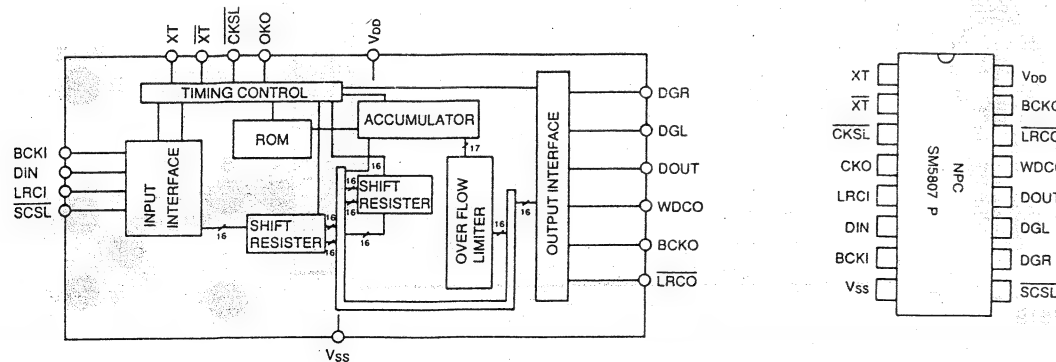
MJM4558(IC101)



LC7881(IC301)



SM5807EP (IC406)



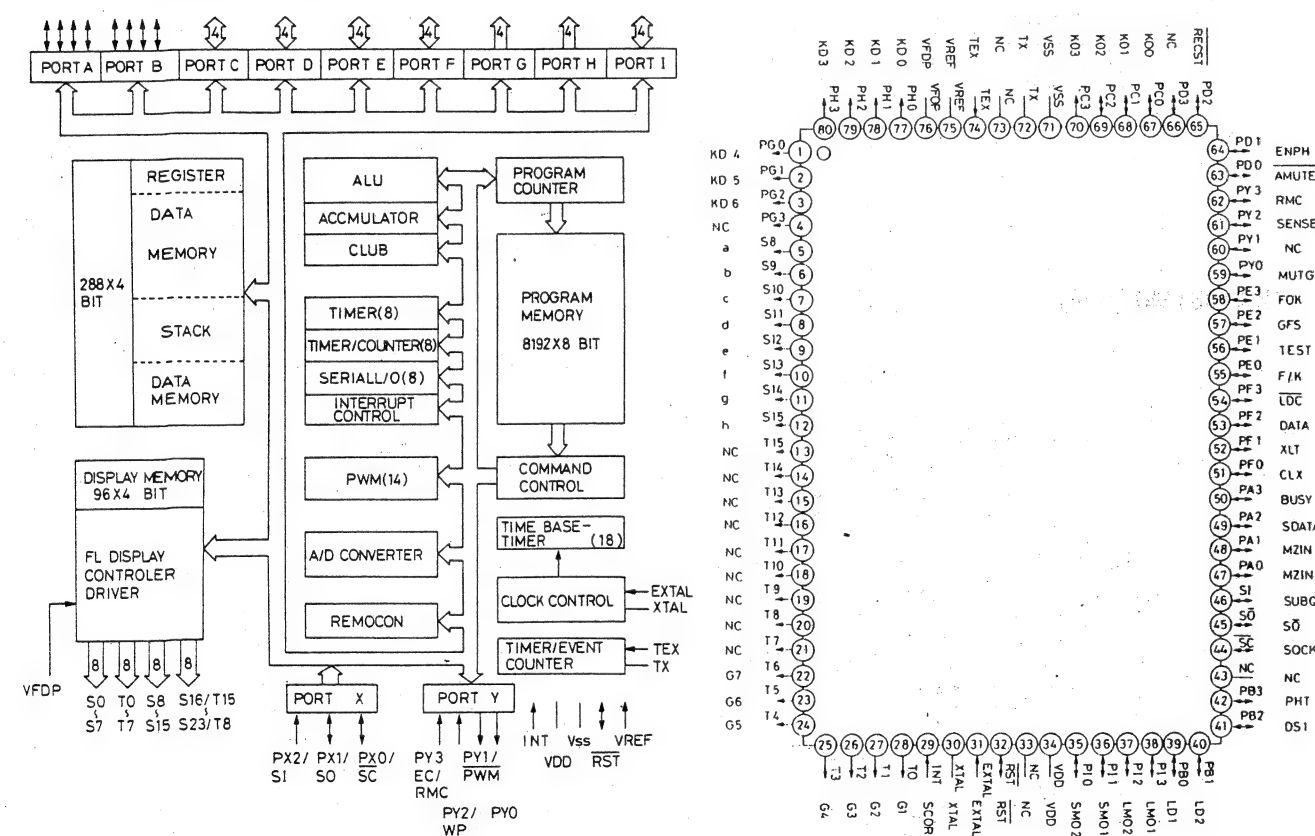
TERMINAL DESCRIPTION  
(IC401 : GC90\*\*\*SN008 / CXP5058H-574Q)

Terminal number	Terminal name	I/O	Description
1~3	404~6	O	Key matrix select signal
4	NC	-	Non-connected terminal
5~11	a~g	O	Fluorescent indication lamp segment signal
12	▲		
13~21	NC	-	Non-connected terminal
22~28	G1~G7	O	Fluorescent indication lamp grid signal
29	SCOR	I	Q data cycle signal input
30	XTAL	-	Non-connected terminal
31	EXTAL	I	Clock input (4.2336Miz)
32	RST	I	RESET signal
33	NC	-	Non-connected terminal
34	V <sub>DD</sub>	-	+5V
35, 36	SMO1, SMO2	O	Loading motor drive output
			UP DOWN STOP
			SMO1 "L" "M" "L"
37, 38	LMO1, LMO2		Loading motor drive out
			IN OUT STOP
			LMO1 "L" "H" "L"
39, 40	LD1, LD2	I	Loading SW1, SW2 input signal
			EJECT Neutral point Loading Chucking complete
			LD1 "M" "M" "L" "L"
41	DS1	I	Disc No. 7 switch input ("L": Disk No. 1 select)
42	PHT	I	Photo-interruptor input (H": Selection position)
43	NC	-	Non-connected terminal
44	SQCK	O	Q data read clock
45	SO	-	Non-connected terminal
46	SUBQ	I	Q data input
47, 48	MZIN1, 2	I	Magazine input sensing signal ("L": Magazine IN)
49	SDATA	I/O	Synchro-data signal
50	BUST	I/O	Synchro-BUST signal
51	CLX	O	Control data clock signal output
52	XLT	O	Control data latch signal output
53	DATA	O	Control data signal output
54	LDC	O	Laser ON/OFF ("L"/"H") signal output
55	F/K	I	Fixed at "L"
56	TEST	I	Fixed at "H"
57	GFS	I	EFM cycle OK ("H") input
58	FOK	I	Focus OK ("H") input
59	MUTG	O	Digital mute ON/OFF ("H"/"L") signal output
60	NC	-	Non-connected terminal
61	SENSE	I	Sensing signal input
62	RMC	I	Remote control signal input
63	AMUTE	O	Analog output mute ON/OFF ("H"/"L") signal output
64	ENPH	O	Emphasis ON/OFF ("H"/"L") signal output

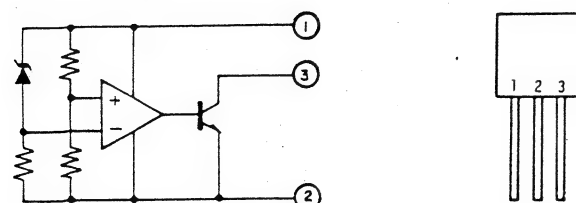
▲: Not used

Terminal number	Terminal name	I/O	Description
65	RELST	O	Non-connected terminal
66	NC	-	Non-connected terminal
67~70	K00~K03	I	Key matrix signal
71	V <sub>SS</sub>	-	GND
72	TX	-	Non-connected terminal
73	NL	-	Non-connected terminal
74	TEX	-	Fixed at +5V
75	V <sub>REF</sub>	-	Fixed at +5V
76	V <sub>FDP</sub>	I	Power supply for fluorescent indication lamp
77~80	KD0~KD3	O	Key matrix selection signal

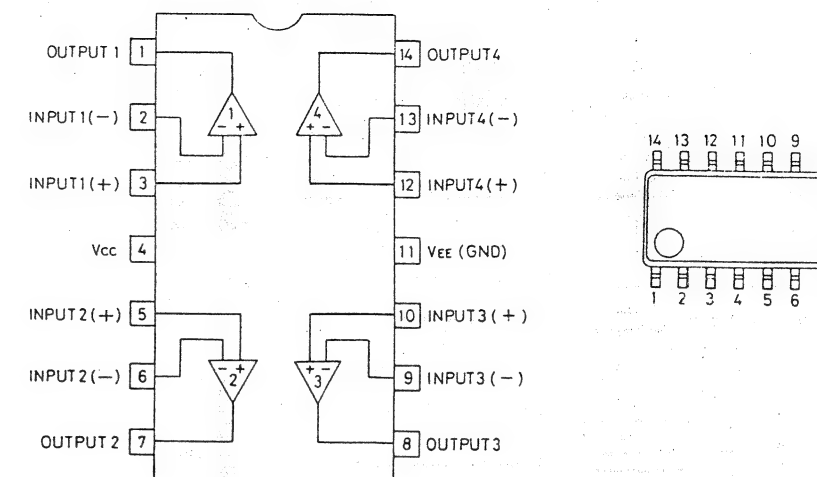
### GC90\*\*\*S N008 (IC401)



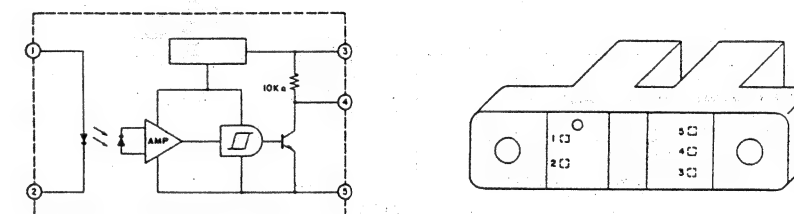
### PST520F (IC402)



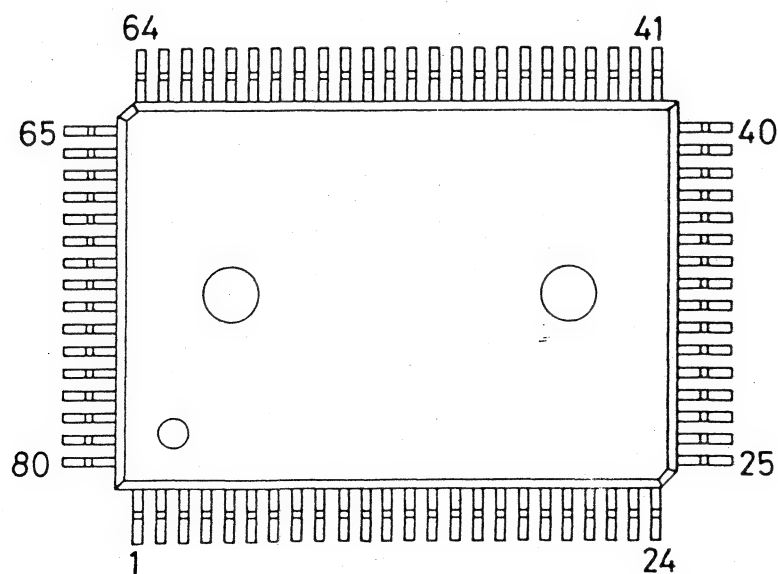
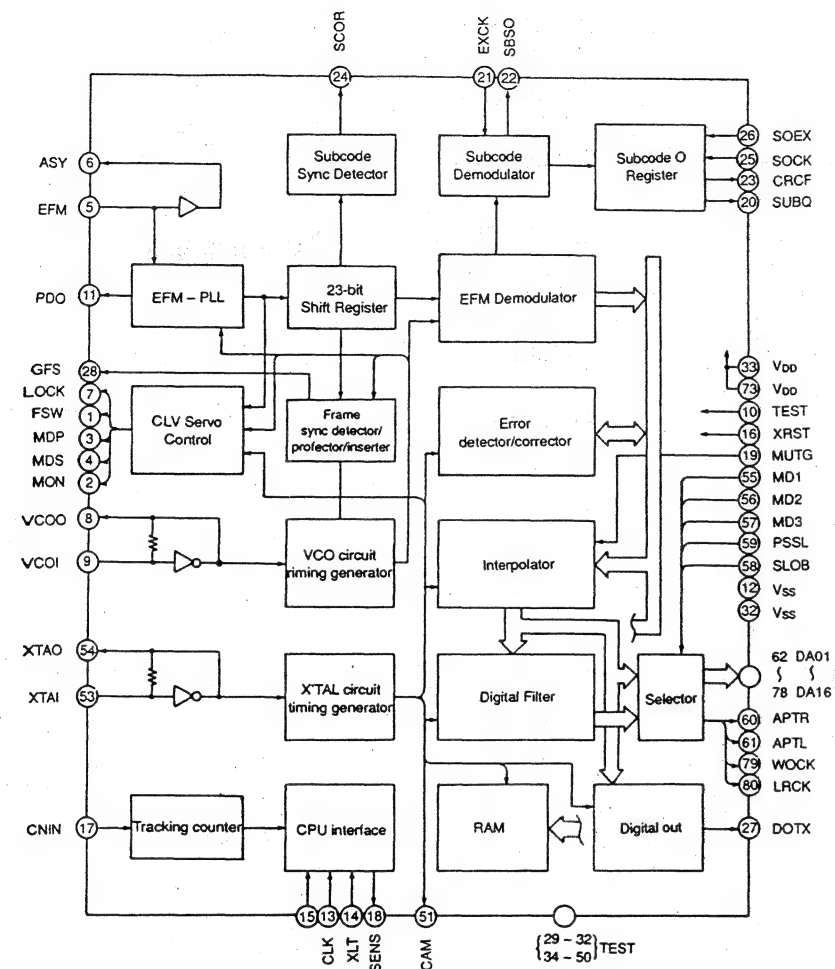
### NJM2058/BA10324 (IC403)



### SP1-505 (IC404)

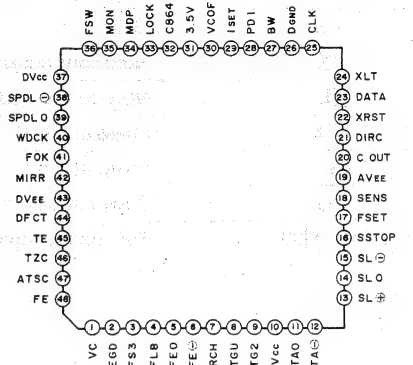
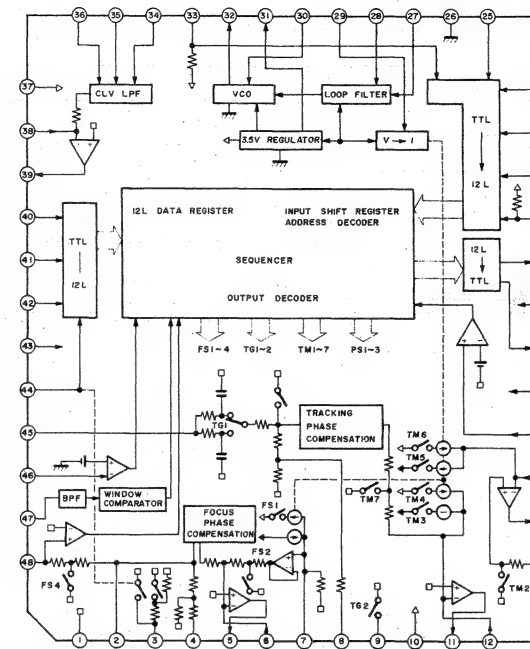


CXD1167QZ(IC501)

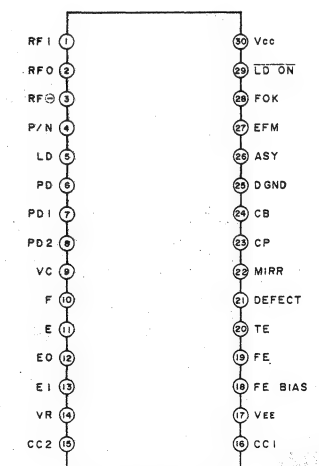
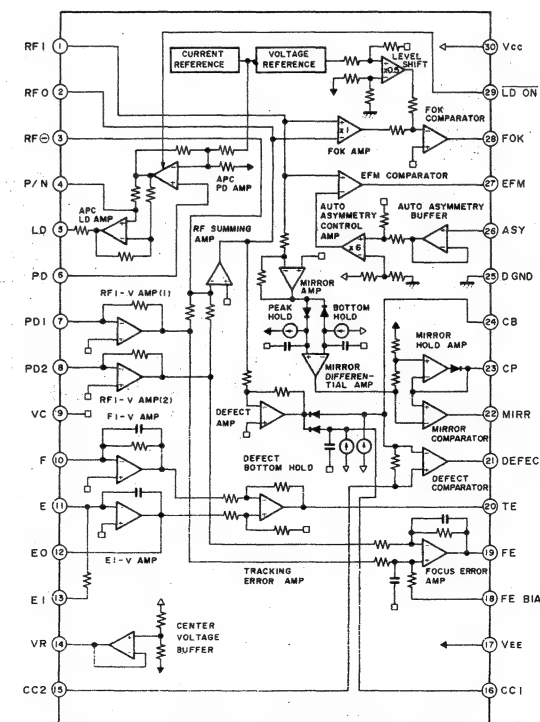


CXA1082AQ(IC503)

CXA1082BQ



CXA1081M(IC504)



# IC AND TRANSISTOR VOLTAGE CHART

PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
IC101	0	0	0	-6.0	0	0	0	6.0												
IC301	2.6	5.2	5.2	5.2	0	5.0	5.0	0	5.0	5.2	0	0	0	5.2	0	0	0	0	0	2.6
IC303	4.9	0	0	0	-5.0	0	0	0												
IC401	1.3	1.2	1.1	0	0.6	0.6	0.6	0.6	0.6	0.6	-25	-25	-1.8	-20	-19	-19	-1.8	-1.8	-25	-19
IC402	5.0	0	4.9																	
IC403	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
IC501	0	0	0	0	2.2	2.4	0	2.5	0	2.8	0	4.8	4.9	0	4.9	0	4.8	0	-	
IC503	0	0	0	0	-0.6	0	0	0	4.9	-0.6	0	0	0.6	0	0	0	4.8	0	0	
IC504	0	0	0	4.6	4.5	-5.0	0	0	0	0	0	0	0	-1.0	1.2	-5.0	0	0	0	
IC406	2.6	2.6	4.9	2.3	2.5	0	2.2	0	5.0	0	0	0	2.5	2.5	0	5				
IC102	5.0	0	0	0	-5.0	0	0	0	5.0											
PIN NO.	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
IC401	-25	-21.8	-22	-22	-22	-22	22	-22	0	1.6	2.4	5.0	0	5.0	0	0	0	0	0	5.0
IC501	-	-	0	0	4.9	4.9	-	0	2.1	2.1	2.0	1.7	4.9	0	1.1	3.4	2.3	2.4	2.4	2.4
IC503	-	4.9	0	0	4.8	0	3.1	3.1	2.2	2.3	3.5	2.4	0	0	0	0	4.9	0	0	0
IC504	-4.3	0	-3.6	0	0	2.5	2.2	0.1	5.0	5.0										
PIN NO.	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
IC301																				
IC401	0	4.8	-	5.0	0	0	0	5.0	0	0	4.9	5.0	0	5.0	0	5.0	0	0.1	0	0
IC501	2.4	0	2.4	2.4	2.4	2.4	2.8	4.2	2.0	2.2	2.0	0	0	2.4	0	4.9	0	0	0	1.2
IC503	0	0	0	-4.4	0	0	0	0												
PIN NO.	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
IC401	4.9	0	0	5.0	5.0	5.0	0	0	0	0	0	0	0	5.0	5.0	-25	1.2	1.2	1.3	1.2
IC501	1.2	-	-	-	-	-	-	-	-	-	-	-	4.9	-	-	0	-	0	0	2.4

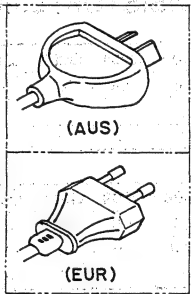
## VOLTAGE (TRANSISTOR) unit in V

SYMBOL	Q101	Q102	Q201	Q202	Q301	Q403	Q404	Q405	Q406	Q407	Q408	Q409	Q410	Q501	Q502	Q503	Q504	Q505	Q506
BASE	0.6	0.6	0.6	0.6	0	0	0	0	0	0	0	0	0	-0.4	-0.4	-0.5	-0.5	0.6	0.6
COLLECTOR	0	0	0	0	2.4	10.4	-10.8	10.5	-10.8	10.4	-10.6	10.3	-10.8	8.1	-8.5	8.1	-8.5	8.1	-8.4
EMITTER	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

SYMBOL	Q507	Q508	Q509	Q511	Q601	Q602	Q603	Q801	Q802	Q803	Q804	Q302	Q411	Q412	Q510
BASE	0.6	0.6	4.5	0	6.7	2.4	6.0	5.8	-5.7	5.5	-5.6	6.0	0	4.0	0
COLLECTOR	8.1	-8.4	4.9	0	10.4	3.1	3.1	10.4	-10.7	10.2	-10.8	6.1	0	4.6	0
EMITTER	0	0	4.3	0	6.1	3.1	5.9	5.1	-5.1	4.9	-5.0	5.4	0	4.7	0



1) AND 2) OF THE "STANDARD" GMA 0





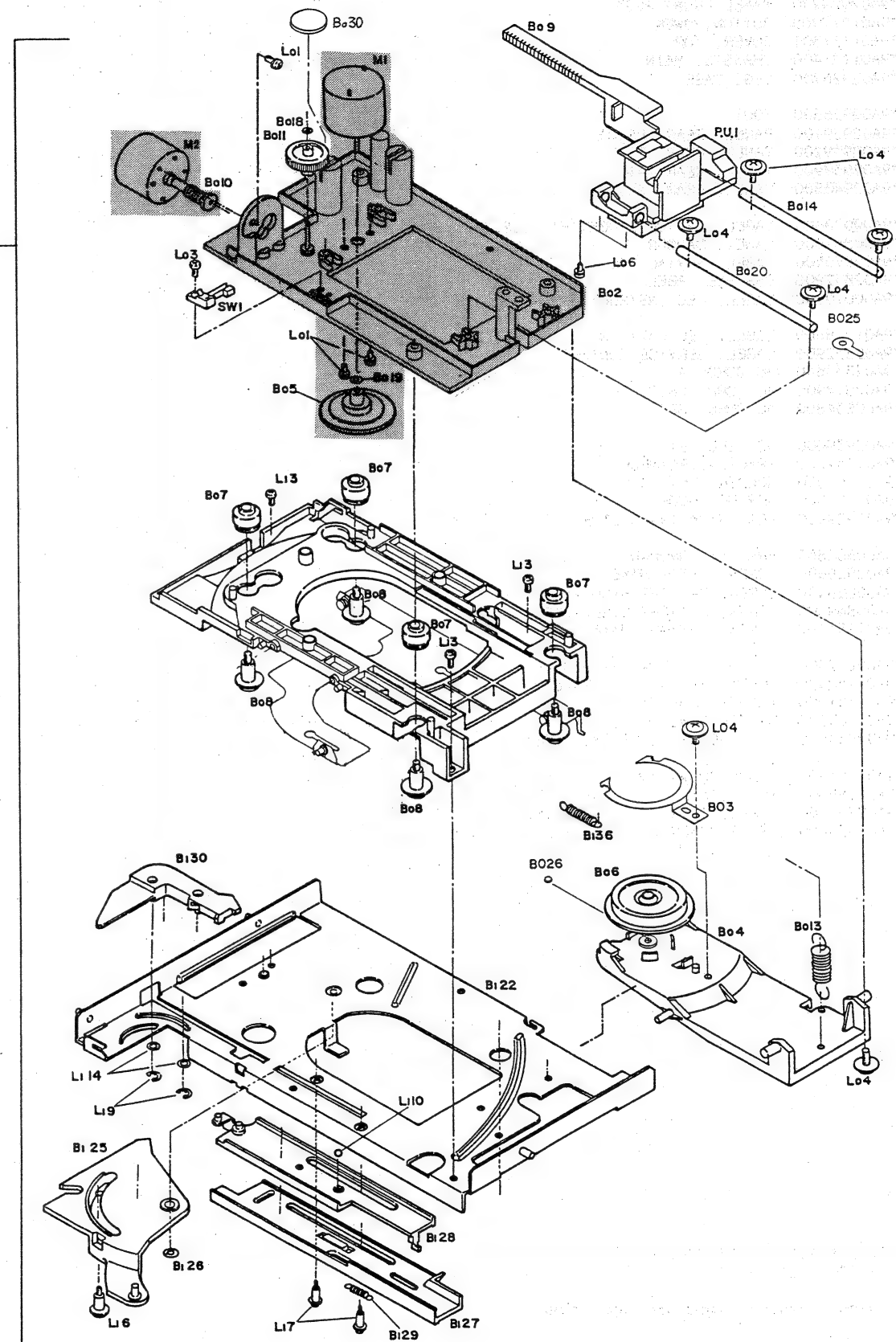
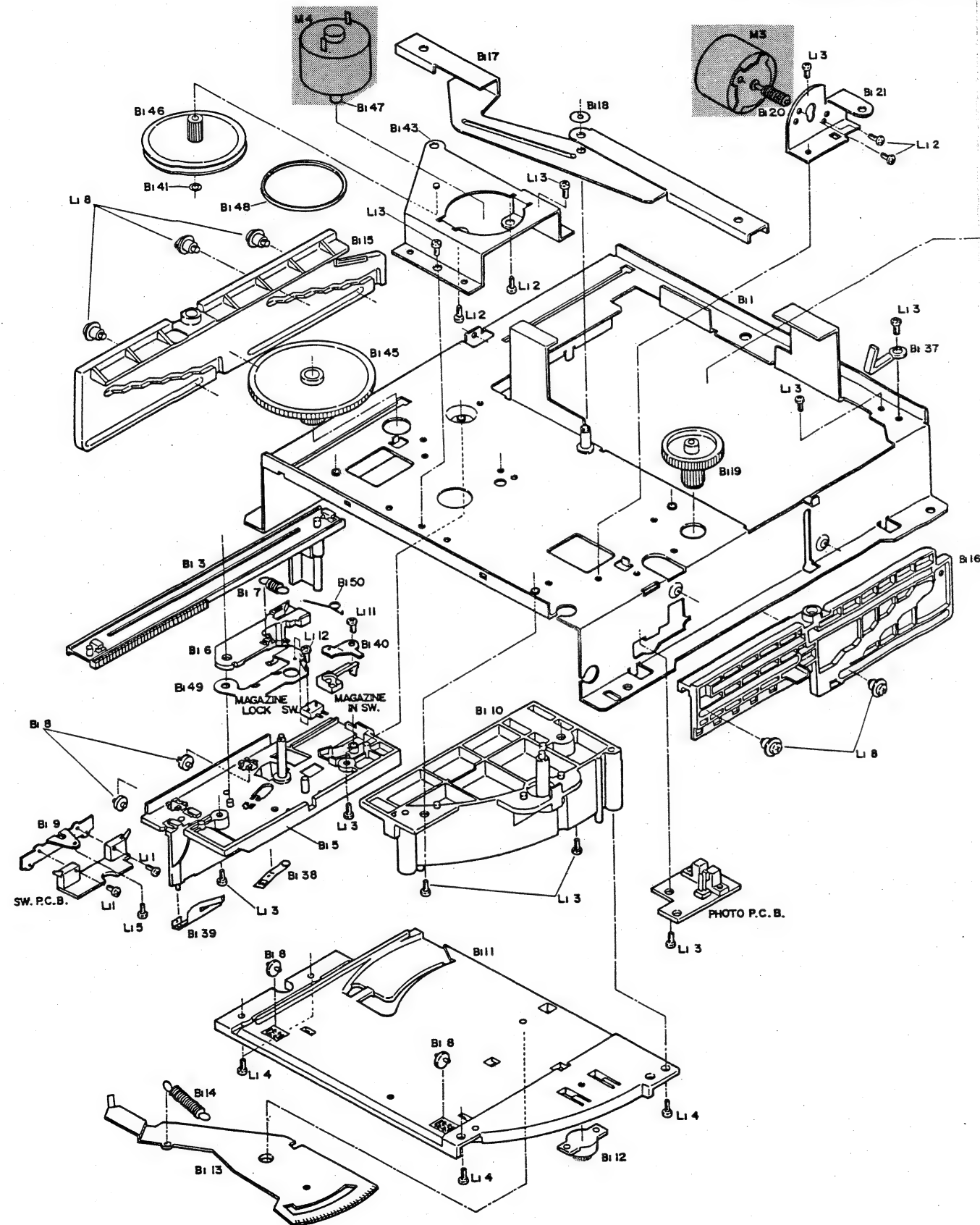
## EXPLODED VIEW-1

REF.NO.	PARTS NO.	DESCRIPTION	REMARKS
A- 1	*9A02929200	PANEL FRONT ASSY	
A-10	*9A01017900	BUTTON,POWER	
A-11	*9A01151301	COVER, TOP	
A-12	*9A01151400	CHASSIS, MAIN	
A-13	*9A02926700	LEG, CASE	
A-14	*9A02926600	FOOT	
A-15	*9A02929100	PANEL, REAR [US,C]	
	*9A02939200	PANEL, REAR [E]	
	*9A02939900	PANEL, REAR [A]	
	*9A02940800	PANEL, REAR [GE]	
A-16	*9A00070600	LABEL, FACTORY IDENTIFI. [US,C]	
A-17	*9A00867800	LABEL, DANGER [US,C]	
A-18	*9A00070500	LABEL, SERIAL NO. [US,C]	
A-19	*9A02852900	CSA AVE LABEL [C]	
A-20	*9A00070700	LABEL, IEC INSTRUCTION [E,A,GE]	
A-21	*9A01018800	LABEL, IEC CAUTION [E,A,GE]	
A-23	*9A02832900	LABEL, SERVICE CONTACT [A]	
AC 1	*9A02833600	AC CORD [A]	
AC 1	*9A02814900	AC CORD [US,C]	
AC 1	*9A02834800	AC CORD [GE]	
AC 1	*9A02939600	AC CORD [E]	
B- 1	*9A01152200	BRACKET, REINFOR.	
B- 2	*9A01152300	HOLDER, FL DISPL.	
B- 5	*9A01151000	SPRING, DOOR	
B- 6	*9A02929400	HEAT SINK,TRANSISTOR	
B- 7	*9A00868800	BRACKET, GROUND	
L- 1	*9A02926800	SCREW, S-TIT M3X6	
L- 2	*9A00869400	SCREW, B-TIGHT BIND M3X8	
L- 3	*9A00869300	SCREW, B-TIGHT BIND M3X8	
L- 4	*9A01151100	SCREW, P-TIGHT M3X6	
L- 5	*9A00872400	SCREW, P-T.FLAT HEAD M3X8	
L- 6	*9A01152600	SCREW, B-TIGHT (+) M3X8	
L- 7	*9A01151200	WASHER (For M3)	
SW801	*9A01165500	SWITCH,POWER	
SW802	*9A02834700	VOLTAGE SELECTOR SW. [GE]	
T 801	*9A01165200	TRANS,POWWR 240V [A]	
T 801	*9A01165300	TRANS,POWER 220-120V [GE]	
T 801	*9A02933700	TRANS,POWER [US,C]	
T 801	*9A02939000	TRANS,POWER [E]	

[US]:U.S.A. [C]:CANADA [A]:AUSTRALIA  
[GE]:GENERAL EXPORT [E]:EUROPE

Parts marked with \* require longer delivery time.

## EXPLODED VIEW (CD DECK)



## EXPLODED VIEW (CD DECK 1)

REF.NO.	PARTS NO.	DESCRIPTION	REMARKS
BI- 1	*9A02937000	CHASSIS, MAIN	
BI- 3	*9A02935500	RACK, WHEEL	
BI- 5	*9A02936200	GUIDE, MAGAZINE (L)	
BI- 6	*9A02936100	ARM, LOCK	
BI- 7	*9A01267600	SPRING, LOCK ARM	
BI- 8	*9A01153300	ROLLER,	
BI- 9	*9A01166700	HOLDER, MICRO SLIDE SWITCH	
BI- 10	*9A01153400	GUIDE, R MAGAZINE	
BI- 11	*9A02936000	GUIDE, MAGAZINE (B)	
BI- 12	*9A01153600	GEAR, DAMPER	
BI- 13	*9A01153700	ARM, EJECT	
BI- 14	*9A02937900	SPRING, EJECT ARM	
BI- 15	*9A01153900	GUIDE, LEFT	
BI- 16	*9A01154000	GUIDE, RIGHT	
BI- 17	*9A01154100	ARM, LIFT	
BI- 18	*9A01154200	WASHER, STOPPER	
BI- 19	*9A01154300	GEAR, FEEDING	
BI- 20	*9A02935900	GEAR, WARM	
BI- 21	*9A01268000	BRACKET, MOTOR A	
BI- 37	*9A00868900	CLAMPER, LEAD WIRE	
BI- 38	*9A01155900	SPRING, MAGAZINE UP.	
BI- 39	*9A02937200	SPRING, (C)	
BI- 40	*9A01156100	PLATE, SWITCH	
BI- 41	*9A01156200	WASHER, STOPPER	
BI- 43	*9A02937100	HOLDER, MOTOR	
BI- 45	*9A01156500	GEAR, LOADING	
BI- 46	*9A01156600	GEAR, TRANSMISSION	
BI- 47	*9A01156800	PULLEY, MOTOR	
BI- 48	*9A01156900	BELT, LOADING	
BI- 49	*9A01269700	PLATE, SWITCH	
BI- 50	*9A01269800	SPRING, SWITCH	
LI- 1	*9A01157000	(+) PAN HEAD M1.7X6	
LI- 2	*9A01157100	SCREW, SEMS P HEAD M2.6X4	
LI- 4	*9A00476400	SCREW, P-TIGHT BIND M3X10	
LI- 5	*9A00040800	SCREW, P-TIGHT BIND M3X6	
LI- 8	*9A01157400	SCREW, PAN HEAD M2.6X1.6	
LI- 11	*9A01157700	SCREW, P-T. B HEAD M1.7X5	
LI- 12	*9A01268900	SCREW, P-T. B HEAD M1.7X6	
M 3	*9A01267900	MOTOR, LIFTION (RF-510T)	
M 4	*9A01268800	MOTOR, LOADING	

[US]:U.S.A. [C]:CANADA [A]:AUSTRALIA  
[GE]:GENERAL EXPORT [E]:EUROPE

Parts marked with \* require longer delivery time.

## EXPLODED VIEW (CD DECK 2)

REF.NO.	PARTS NO.	DESCRIPTION	REMARKS
B0- 2	*9A02935300	BMC CHASSIS,	
B0- 3	*9A02937300	FRAME,	
B0- 4	*9A02936400	ARM, CHOCK	
B0- 5	*9A01158400	DISC, TABLE	
B0- 6	*9A02929700	DISC, CHOCK	
B0- 7	*9A00725000	DAMPER CUSHION A	
B0- 8	*9A02936500	SCREW, DAMPER (C) R56078	
B0- 9	*9A02929500	RACK GEAR, V	
B0- 10	*9A02936300	GEAR, WARM (D)	
B0- 11	*9A02935400	FOIL, WARM	
B0- 13	*9A02937800	COIL, SP	
B0- 14	*9A02937600	SHAFT, GUIDE L	
B0- 18	*9A01160100	WASHER, WORM WHE.	
B0- 19	*9A01158600	WASHER, CHASSIS	
B0- 20	*9A02937700	SHAFT, GUIDE S	
B0- 25	*9A02929600	PLATE, GND	
B0- 26	*9A02929800	SHEET	
B0- 30	*9A02930000	WASHER, ORM400847	
BI- 22	*9A02929300	CHASSIS, B SUB	
BI- 25	*9A02935600	ARM, LOADING (A)	
BI- 26	*9A01154900	WASHER, STOPPER	
BI- 27	*9A01155000	ARM, SLIDING UND.	
BI- 28	*9A02935700	ARM, LOADING (C)	
BI- 29	*9A01155200	SPRING, SLIDING	
BI- 30	*9A02935800	ARM, LOADING (D)	
BI- 36	*9A01268500	SPRING, DISC HOL.	
L0- 1	*9A00046500	SCREW, SEMS P HEAD M2X5	
L0- 3	*9A02927000	SCREW, B-TIT M2.6X8	
L0- 4	*9A02812500	SCREW, P-TI, BASE R53807C	
L0- 6	*9A02465600	SCREW, SEMS, B. HEAD M2X6	
LI- 3	*9A00040900	SCREW, S-T. P. HEAD M3X6	
LI- 6	*9A01157200	SCREW, ROUND HEAD M3X4.2	
LI- 7	*9A01157300	SCREW, PAN HEAD M2.6X1.6	
LI- 9	*9A01157500	E RING 2.5MM DIA.	
LI- 10	*9A02925100	BALL, STEEL 4MM	
LI- 14	*9A01157900	WASHER 3X6X0.3T	
M 1	*9A01158300	MOTOR, DISC	
M 2	*9A01158300	MOTOR, DISC	
PU	*9A02926000	PICK UP ASSY, SF-90NFK	

\*9A02616100 OWNER'S MANUAL  
\*9A02616200 OWNER'S MANUAL [C,E]  
\*9A02935200 REMOCON, SSR32-UM4  
\*9A02561900 DRY BATTERY

[US]:U.S.A. [C]:CANADA [A]:AUSTRALIA  
[GE]:GENERAL EXPORT [E]:EUROPE

Parts marked with \* require longer delivery time.

## MAIN PCB ASSY

REF.NO.	PARTS NO.	DESCRIPTION
BC 1	*9A02931300	MAIN PCB ASSY
	*9A02924900	MAIN PCB
	9A02932000	SOLDERING
	9A02932100	FLUX
	9A02792600	CORE, BEAD EXCELDR 35V
C 803,804	9A00050300	C., ELEC 2200UF/16V
CN 1	9A01719100	CONNECTOR BASE 6P
CN 2	9A00059400	CONNECTOR, PIN HEADDER 8P
CN 3	9A00059300	CONNECTOR, PIN HEADDER 6P
CN 4	9A01163600	CONNECTOR, PIN HEADDER 8P
CN 5	9A01163700	CONNECTOR, PIN HEADDER 11P
CN 6	9A01163800	CONNECTOR, WIRE TRAP 13P
CN 7	9A01024000	CONNECTOR, WIRE TRAP 12P
D 401	9A02773600	ZENER DIODE, MTZ20B
D 402,801	9A02806900	DIODE, ISR139-100T
D 502,504	9A01849900	DIODE, ISS133T
D 601	9A02927200	ZENER DIODE, MTZJ8.2AT
D 602,603	9A01849900	DIODE, ISS133T
D 802,803	9A02806900	DIODE, ISR139-100T
D 804	9A02806900	DIODE, ISR139-100T
D 805,806	9A02927400	ZENER DIODE, MTZ6.8BT
D 807,808	9A02927300	ZENER DIODE, MTZ5.6CT
IC101	9A02793400	IC, NJM4558LD (D.OP-AMP)
IC101	9A02789400	IC, BA4558NDX
IC102,303	9A01725100	IC, NJM4558L
IC102,303	9A02789400	IC, BA4558NDX
IC301	9A02927100	IC, DAC LC7881B
IC401	9A02926900	IC, (MICON) CXP5058H-574Q
IC402	9A02927500	IC, PST520F
IC403	9A01162500	IC, BA10324
IC403	9A01162400	IC, NJM2058
IC406	9A02357700	IC, SM5807EP
IC501	9A02925400	IC, CXD1167A
IC503	9A01162900	IC, CXA1082AQ
IC503	9A02925300	IC, CXA1082BQ
IC504	9A01163000	IC, CXA1081M
JK101	9A01023500	JACK, RCA 2P
JK102	9A01457900	EARPHONE JACK
L 401	9A02389700	INDUCTOR 47UH-K-AXT
L 402,502	9A02775400	COIL, MICRO 10UH-K-AXT
L 503	9A02775400	COIL, MICRO 10UH-K-AXT
Q	9A02925600	TR., 2SC2060(Q)(R)
Q 101,201	9A02925500	TR., 2SC1740(Q)(R)
Q 102,202	9A02925800	TR., 2SC2878(A)(B)
Q 301	9A02925900	TR., 2SC3811(Q)(R)
Q 302,601	9A02925500	TR., 2SC1740(Q)(R)
Q 303,602	9A02924700	TR., 2SA933(Q)(R)
Q 304,801	9A02925700	TR., 2SC2060(V)(Q)(R)
Q 403,405	9A02926100	TR., 2SD1862(Q)(R)
Q 404,406	9A02925200	TR., 2SB1240Z(Q)(R)
Q 407,409	9A02926100	TR., 2SD1862(Q)(R)
Q 408,410	9A02925200	TR., 2SB1240Z(Q)(R)
Q 501,503	9A02790700	TR., 2SD1380(Q)(R)
Q 502,504	9A02789900	TR., 2SB1009QR
Q 505,803	9A02790700	TR., 2SD1380(Q)(R)

[US]:U.S.A. [C]:CANADA [E]:EUROPE [A]:AUSTRALIA  
[UK]:U.K. [GE]:GENERAL EXPORT

Parts marked with \*require longer delivery time.

## MAIN PCB ASSY

REF.NO.	PARTS NO.	DESCRIPTION
Q 506	9A02789900	TR., 2SB1009QR
Q 507	9A02926100	TR., 2SD1862(Q)(R)
Q 508	9A02925200	TR., 2SB1240Z(Q)(R)
Q 509,802	9A02924800	TR., 2SA934(Q)(R)
Q 510	9A02925800	TR., 2SC2878(A)(B)
Q 603	9A02924700	TR., 2SA933(Q)(R)
Q 804	9A02924800	TR., 2SA934(Q)(R)
Q 804S	9A02789300	TR., 2SA934VQRZ
R 536,537	9A02813500	R., CARBON R50 4.7 OHM
SF501,502	9A02937400	VR, SEMI EVND7AA02B24
SF503	9A02937500	VR, SEMI EVND8AA03B54
SF504	9A02937400	VR, SEMI EVND7AA02B24
SF505	9A01163100	POTENTIOMETER, 2K (B)
X 301	9A02811600	RESONATOR CSA16.93MX140

## POWER SUPPLY PCB ASSY

REF.NO.	PARTS NO.	DESCRIPTION
	*9A03086300	POWER SUPPLY PCB ASSY [US,C]
	*9A03086400	POWER SUPPLY PCB ASSY [E]
	*9A03086500	POWER SUPPLY PCB ASSY [A]
	*9A03086600	POWER SUPPLY PCB ASSY [GE]
	*9A02935100	GATHER PCB
	*9A03087100	POWER SUPPLY PCB
AC 1	9A02833600	AC CORD [A]
AC 1	9A02814900	AC CORD [US,C]
AC 1	9A02834800	AC CORD [GE]
AC 1	9A02939600	AC CORD [E]
C 825	9A02934200	C., SR25V683M-5FT
CN8	9A01165600	CONNECTOR, PIN HEADDER 4P
T 801	9A01165200	TRANS,POWER 240V [A]
T 801	9A01165300	TRANS,POWER 220-120V [GE]
T 801	9A02933700	TRANS,POWER [US,C]
T 801	9A02939000	TRANS,POWER [E]

## VOL. SEL. PCB ASSY

REF.NO.	PARTS NO.	DESCRIPTION
	*9A03087000	VOL. SEL. PCB ASSY [GE]
	*9A02935100	GATHER PCB
	*9A03087200	VOL. SEL. PCB
	*9A02834700	SW., VOL. SELECTOR [GE]

## MECHA SW PCB ASSY

REF.NO.	PARTS NO.	DESCRIPTION
	*9A02930800	MECHA SW PCB ASSY
	*9A02935000	PCB.
IC404	9A01166200	PHOTO INTERRUPTER, SPI-505
S 1	9A01166300	SWITCH, LEAF DISC 1
S 2, 3	9A01166400	SWITCH, MICRO SLIDE

## CONTROL PCB ASSY

REF.NO.	PARTS NO.	DESCRIPTION
	*9A03085900	CONTROL PCB ASSY
	*9A02925000	GATHER PCB
	*9A03086100	CONTROL PCB
FL 1	9A01164000	DISPLAY, FLUORESCENT
S 7-18	9A02938400	5N TYPE LIGHT TOUCH SWITC
U 701	9A02812000	REMOC.RCV.UNIT, SBX1610-02

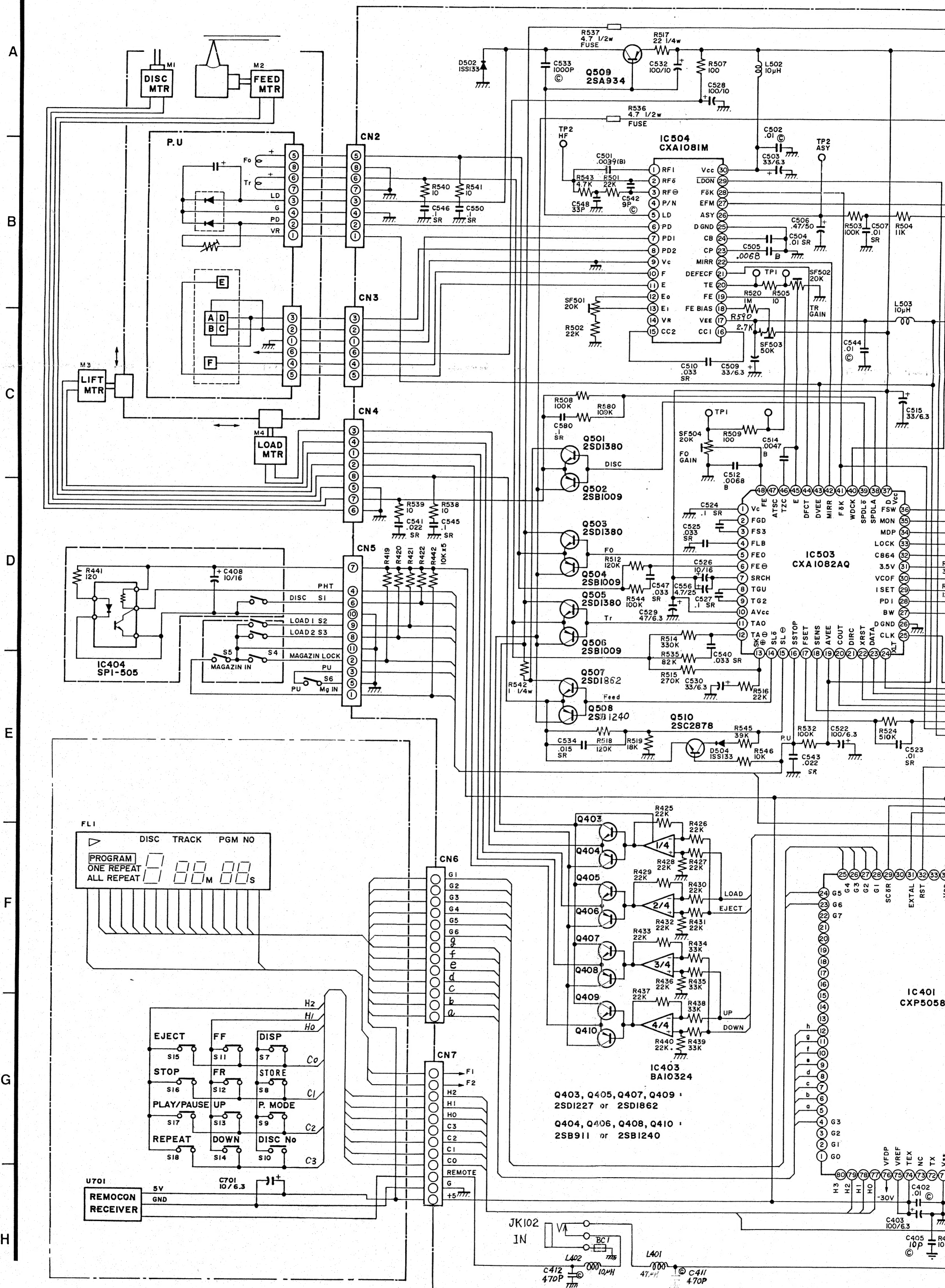
## POWER SW PCB ASSY

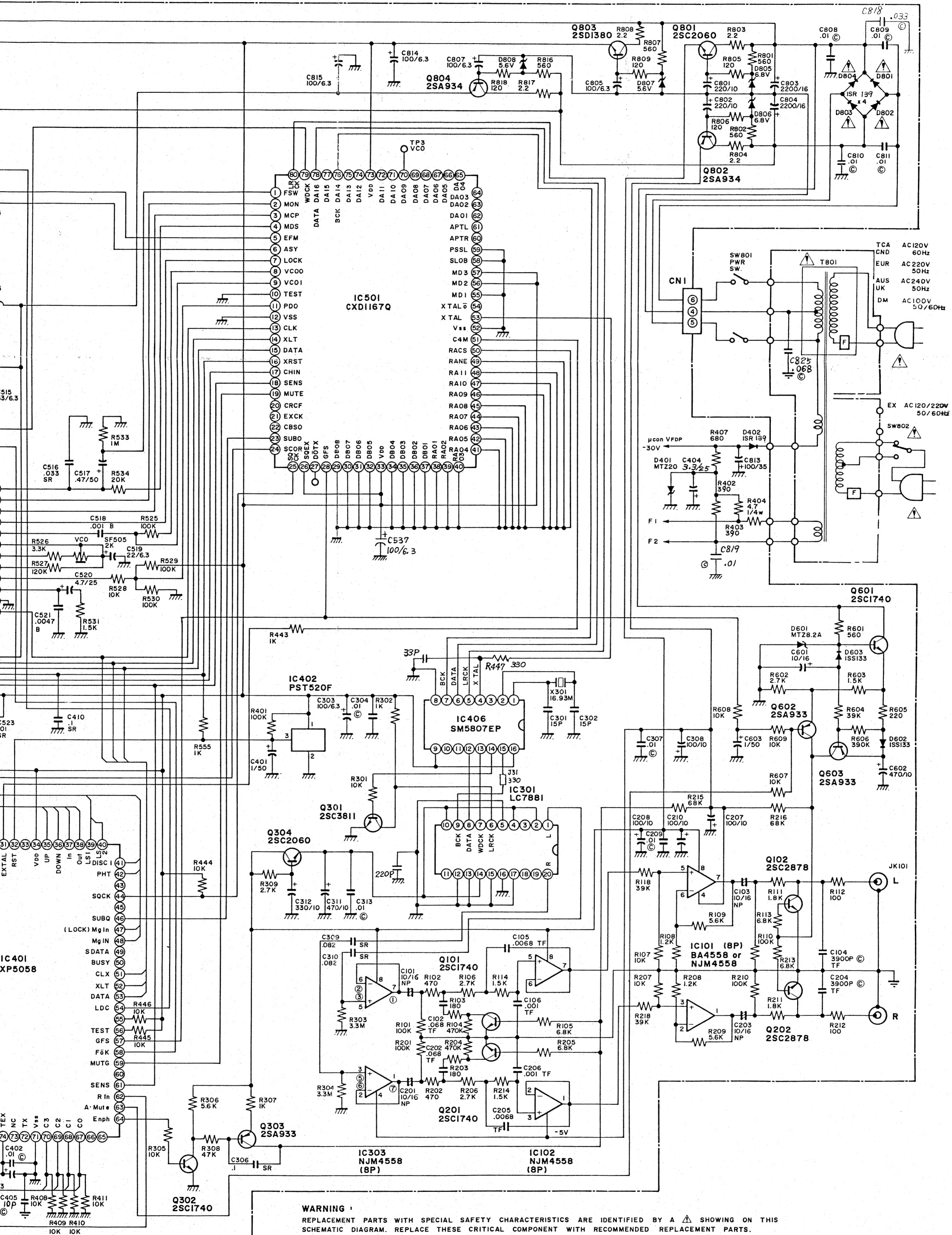
REF.NO.	PARTS NO.	DESCRIPTION
	*9A03086000	POWER SW PCB ASSY
	*9A02925000	GATHER PCB
	*9A03086200	POWER SW PCB
SW801	9A01165500	SWITCH, POWER


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**WARNING :**  
REPLACEMENT PARTS WITH SPECIAL SAFETY CHARACTERISTICS ARE IDENTIFIED BY A  SHOWING ON THIS SCHEMATIC DIAGRAM. REPLACE THESE CRITICAL COMPONENT WITH RECOMMENDED REPLACEMENT PARTS. DON'T DEGRADE THE SAFETY OF THIS SET THROUGH IMPROPER SERVICING. SERVICE PERSONNEL SHOULD MAKE LEAKAGE-CURRENT OR RESISTANCE MEASUREMENTS TO DETERMINE THAT EXPOSED PARTS ARE ACCEPTABLY INSULATED FROM THE SUPPLY CIRCUIT BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.